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An Address
ON
CHANGES IN THE CLINICAL ASPECTS OF DISEASE.*

BY
SIR HUMPHRY ROLLESTON, BART., K.C.B., M.D.,
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CHANGES in the clinical characters of disease are interesting not only to those of us who from the passage of time have watched once familiar maladies alter their features, and become rare, and have seen new ones come on the scene, but to everyone, because different years often show differences in the occurrence or the prominence of certain characters and manifestations of the common epidemic diseases. This is particularly true of what we all, however much we may deplore it in others, are driven sooner or later to call "influenza." In one year it is mainly naso-pharyngeal, in others pulmonary, gastro-intestinal, nervous, or, from the presence of a rash, may imitate scarlet fever, or, as in America in 1923, may be regarded as an epidemic of dengue (vide Hamer, 1923). On the other hand, it might be argued that what are called different types of influenza are in reality distinct diseases, as might be suggested by the separation of epidemic or lethargic encephalitis, which at its onset so often simulates influenza. During the war the virulence of influenza underwent a deplorable and dramatic increase in 1918, when there were two waves—the first in the spring with a comparatively low incidence of complications and deaths, and the other in the autumn, which was associated with *Streptococcus haemolyticus* infection and a high percentage of thoracic complications and mortality; this epidemic continued into 1919 and was world-wide. Thus within a short time there was a remarkable change in the character of a familiar disease, showing that this subject may be of immediate practical importance and not merely of historical interest.

Sydenham maintained that acute diseases showed (1) a long periodic evolution with a rise, decline, and fall extending over centuries; (2) seasonal variations with waves measured in months (as in the influenza of 1918) so that their character and reaction to treatment altered in a short time, a method successful in one epidemic becoming useless or even harmful in another; (3) that there was in his rather mysterious "epidemic constitutions" a special influence—telluric, as from the bowels of the earth, or climatic—which becomes dominant and by contaminating the atmosphere and acting on men's bodies disposes them to this or that disease, and impresses some definite character on the clinical manifestations of diseases prevalent at the time to the exclusion of other symptoms, the amplitude of this wave being measured in years. Major Greenwood explains the term "epidemic constitutions" as meaning that secondary infections, such as those familiar in influenza and measles, are just as important from the point of view of morbidity and mortality as the specific causes of disease. Sydenham, of course, had no knowledge of bacteriology, but Sir William Hamer, following in the footsteps of the English Hippocrates, has for years, with attractive eloquence and great ingenuity, argued the epidemiological relationship of diseases associated with different microbic agents—namely, that members of his "catarrhal group of diseases" (influenza, cerebro-spinal fever, acute poliomyelitis, and encephalitis epidemica) are variants of the same morbid process; at one time he ascribed them to the same virus acting under different conditions. Referring in 1924 to these and other acute diseases occurring in "the influenzal group of diseases," Hamer picturesquely wrote: "Surely we may recognize the protean influenza, now merely in mufti, but changing from one civilian garb to another under our eyes, and demonstrating unmistakably that the more it changes the more it is the same thing." In 1922 he argued that the hypothetical filter-passer determines the clinical manifestations which the *Bacillus influenzae* shall produce; and in 1925 he set out his thesis to the effect that in pandemic times the virulence of the influenzal germ was different from its activity in the intervals or trailing prevalences, giving rise in pandemics to a "shock attack" or influenza, and in the intervals apt to activate various secondary or associated micro-organisms—pneumococci, streptococci, meningococci. This is a much less iconoclastic view than that all the diseases in question are due to modifications of the same micro-organism, and narrows the gulf between the extremes of the epidemiological and bacteriological standpoints.

Recorded Changes in the Clinical Characters of Diseases.

There is now no need to insist that a change of type of disease does occur. A number of diseases are known to have changed their clinical characters; thus *scarlet fever* was very mild a century ago, fifty years ago it was extremely malignant, and now again it is a mild infection, although its prevalence cannot be shown to have diminished (Brownlee). Different types of the strains of the *Streptococcus haemolyticus* of scarlet fever have been described (Griffith), and it appears that these vary in different countries (James) so that clinical differences may thus be explained—for example, the extreme rarity of the disease in India. Though in addition to differences of virulence of the causal organism the resistance and antitoxin content of the individual must be taken into account, it would appear probable that simple mild scarlet fever may be due solely to pure streptococci, whereas the malignant forms are due to a secondary infection.

Acute rheumatism, which eventually may, like scarlet fever, be proved to be of streptococcal origin, has become less acutely arthritic, though not less frequent than it was thirty years ago; widespread and excessively painful and swollen joints and profuse sweating causing the miliary eruptions once so familiar are seldom seen now. The pulmonary complications described by P. M. Latham in 1846 have become very rare, and hyperpyrexia is almost unknown.

Out of Latham's 136 cases of acute rheumatism the heart was attacked in 90, or 66 per cent., and among these 90 cases the lungs were affected in 24, there being pneumonia in 18 (6 double), pleurisy in 2, and much bronchitis in 4. Among the 46 cases in which no cardiac lesion was detected there were pulmonary complications in 5 (pneumonia in 3). It may well be that some or all of these complicated cases were different from what would now be regarded as uncomplicated acute rheumatism, and that they were actually pyaemic or septicaemic in nature.

Possibly the practical disappearance of these thoracic complications is connected with the alteration in the treatment—venesection in the past, salicylates during the last forty-five years. Secondary infections may have been favoured by the prolonged course of the disease in the pre-salicylate days, of which a verbal record remains in the answer of "six weeks" made by an authority to the question "What is good for acute rheumatism?"

Articular and tophaceous *gout* is becoming a curiosity, but we comfort ourselves by reflecting on our wise temperance as compared with our many-bottled predecessors.

Pneumonia has altered its character to a considerable extent since the reappearance of influenza in 1889, broncho-pneumonic forms being now perhaps as frequent as the frank lobar form; but this is only to say that there are several forms of the disease. Among the cases due to infection with pneumococci alone the pneumococcus types I, II, III, and IV differ in virulence, and accordingly the mortality varies, being highest in cases due to type III.

In the past the character of *small-pox* has varied, so that occasionally epidemics have been extremely mild, as was noted by Sydenham, Jenner, and others (see Newman). There has of recent years been a noticeably mild form of small-pox, both in this country and abroad, which is thought to come from North America; so mild, indeed, is it that in Switzerland the public expostulated against vaccination as more disagreeable than the disease, and some regard it as distinct from small-pox and would give it another name—such as alastrim (a Brazilian word derived from the Portuguese *alastra* = "something which burns like tinder, scatters, spreads from place to place" (Jorge)), amaas or kaffir-pox, para-variola, or para-small-pox. On the other hand, there are good grounds for the view that

* Presidential Address, Medical Society of London, January 10th, 1927.

it is a mild form of small-pox due to a virus with suppression of its toxic properties for man, although its affinities for other animal species have not been appreciably changed (Ledingham). It occurs almost solely in the unvaccinated, and protects against small-pox and vaccinia; experimentally the viruses of the three diseases have been shown to be variants of the same virus (Blaxall; Ledingham; Gordon). As a rule, though not invariably, the mild form breeds true, but the mild and severe forms of small-pox may occur side by side. The objection to employing a special name, such as alastrim, is that this may make it more difficult even than it is now to maintain the necessary preventive measures of vaccination and isolation.

Acute *appendicitis* has undoubtedly become very much commoner since 1889, when influenza broke upon this country after a respite so long (since 1848) that its nature was not recognized for some little time.

The word "appendicitis," which has been criticized as barbarous on account of its Latin basis with a Greek termination, was constructed in 1886 by Reginald Fitz of Boston, Mass.; before that time it was called perityphlitis. Kelly and Hurdon unearthed a case reported in France by Meslivier in 1759. If we hesitate to accept this explanation of Erasmus's illness in 1530 and the necropsy mentioned by W. Musgrave in 1684, which may have shown evidence of past appendicitis, the first case in this country was briefly reported in 1812 as "Disease of the appendix vermiformis" by "James Parkinson Surgeon Esqr." (obiit 1824), a general practitioner in Hoxton, who was also a palaeontologist, a writer of pamphlets advocating bloodless revolution, and the author of the famous "Essay on the Shaking Palsy" (1817) which has made his name familiar in "Parkinson's disease," "Parkinsonism," and "the Parkinsonian mask." In 1836 John Burne, physician to the Westminster Hospital (1835-42), in a paper read to the Medical and Chirurgical Society, referred to twenty cases he had seen, including three examined after death at Guy's Hospital; and in the same year Thomas Hodgkin, pathologist at Guy's Hospital, gave an account of the condition, which Thomas Addison probably drew on in his often quoted description (1839).

It can hardly be maintained that the condition was overlooked entirely by a generation less acute than ourselves; indeed, had it been as frequent before its operative treatment came in as it is now, it is obvious that the mortality from acute peritonitis would have been very high. For the increased occurrence of appendicitis various factors have been suggested, such as alteration in diet, greater consumption of meat—fresh, frozen, or tinned—fresh fruit, and antimony from the red rubber of bottle-stoppers. The association with the return of influenza, which has an intestinal form, is certainly significant.

A well established change in chronic disease within the lifetime of some of us is the great diminution of *chlorosis*, which may be contrasted with the, to my mind, increased incidence of pernicious (Addisonian) anaemia. The declension of chlorosis has been ascribed to several causes, such as better feeding, especially more meat, and to the change of fashion as regards tight lacing (F. P. Weber), the etiology of the disease being, according to Rosenbach and others, succinctly expressed as the corset. This explanation of the present rarity of the green-sickness of young women has not escaped adverse criticism (Elder; Waterhouse).

It is generally, though not unanimously, believed that *urinary calculus* in the Eastern Counties has undergone a well marked diminution; it must be remembered that fifty years ago operations for stone were among those most often undertaken, and therefore bulked more prominently than at the present day. The statistics collected by R. Smith and Yelloly make it clear that a hundred years ago urinary calculus was much commoner in Norfolk than in other parts of England and Wales.

R. Smith, making considerable allowances so as to avoid minimizing the incidence of calculous disease, estimated that in 1819 there were not more than 200 cases annually in the whole of the British Empire, and that there were as many cases in the Norfolk and Norwich Hospital as in either Scotland or Ireland. Yelloly found that from 1772 to 1827 inclusive there were 649 lithotomies in the Norfolk and Norwich Hospital, or one in forty admissions, and on an average 11½ a year; that stone occurred in one out of every 34,000 persons in Norfolk as compared with one out of 108,000 persons in the rest of England and Wales, with a population of nearly twelve millions; and that it was less rare in Norwich, London, and other towns than in the surrounding country districts.

The reason for this relatively high incidence of urinary calculi in Norfolk is obscure. Dr. John Yelloly, who was physician to the London Hospital from 1807 to 1818, and in 1805, when the Medical and Chirurgical Society was formed in opposition to the Medical Society of London, then under the blight of Dr. James Sims's long presidency, was with Dr. A. J. G. Marcet one of the founders and first secretaries of the new society, of which he was later treasurer, was also physician to the Norfolk and Norwich Hospital from 1820 to 1832, and in 1829 and 1830 wrote on the tendency to calculous diseases. He very tentatively put forward the view that the "large employment of ill fermented farinaceous food" was, by the resulting indigestion, *a*, if not *the*, cause of the prevalence of stone in Norfolk.

Syphilis, when it breaks out in a previously uninfected race, is much more virulent than in civilized and syphilized countries; but the much milder type of the cutaneous and bony lesions of syphilis in this country can hardly be ascribed solely to some approach to relative immunity, as the influence of more general early recognition and efficient treatment must be taken into account.

The diminution of malaria, yellow fever, plague, and enteric fever, and the practical disappearance of hydrophobia and scurvy in this country, have been determined by administrative and hygienic measures. It has been suggested that the milder small-pox at the present time is due to the better hygienic conditions, thus corresponding with the lower fatality of typhus and relapsing fever when these rare diseases occur in this country, and their increased mortality in conditions of famine, as in Serbia during the war. No doubt this factor is important, but it is not the whole story, for in the past small-pox and scarlet fever have had their mild interludes. Pasteur's explanation, which takes into account both a change in the virulence of the infective agents and altered conditions of environment, seems nearer the mark, but there may be some further and obscure factor to account for these long-spaced variations in virulence.

Hydatid disease has become much rarer in England and commoner in the Argentine Republic, but this is dependent on variations in the source of infection—namely, from dogs attendant on cattle. Forty years ago hydatids were by no means rare around Cambridge, now the disease is most exceptional; possibly, like the extinction of malaria in the fens, this is connected with the draining and reclaiming of the land. Conversely, the influence of certain industries in producing disease, such as silicosis; carcinoma (sweeps', paraffin workers', mule-spinners'), anaemia (benzol), and jaundice (trinitrotoluene and tetrachlorethane during the war), have attracted more, and more skilled, attention. It is rather remarkable that chimney-sweeps' cancer and mule-spinners' cancer are practically confined to this country. On the other hand, the effect of prophylactic measures is well shown in the great diminution of lead poisoning during this century.

Effect of Treatment.

It may be interesting to mention incidentally an artificial factor which had modified disease as many of us see it—namely, the influence of early and efficient treatment. The modification of syphilis so that the terrible tertiary lesions of bone are now seldom seen may be in part due to more thorough treatment. Enteric fever has become rare, and diphtheria has lost much of its terrors, thanks to prophylactic and curative measures. The influence of Jennerian vaccination is too obvious to labour, but attention may be drawn to an incident in connexion with inoculation in the eighteenth century: an uneducated Shetlander, John Williamson, practised inoculation with small-pox crusts which he dried and kept for years before using; with this attenuated virus he never failed to obtain protection and never had any bad results.

Surgery, too, had not been idle; thus early laparotomy for perforated or leaking gastric ulcer has made subphrenic gas-containing abscesses extremely rare. As the result of improved methods of diagnosis, and so earlier operations on cholecystitis, the character of gall-stone cases has undergone some change, and in Paris at any rate cases of stones in the common bile duct have become rare (Petit-Dutaillis and Mestrezat).

Disease: A Reaction, not a Morbid Entity.

It would indeed be strange if diseases always remained the same, for a disease, as the late Sir Clifford Allbutt insisted, is not a fixed morbid entity, such as might perhaps be visualized by the entry of an evil spirit into a man, but the reaction of that complex organism the body to some infection or injurious influence. There have been many definitions of disease, but Adami's (1910) gives a good impression of the potential variability in the reaction we call disease, and runs as follows: "Disease is a process or succession of disturbances induced by any agent which disturbs the normal activities of the organism as a whole or of its constituent parts." It is clear that the character of the reaction must depend on the condition of the individual host and on that of the cause—of the soil and the seed. Both of these may vary; for example, the difference in the manifestations of infections at the various periods of life shows how the state of the soil modifies its reaction. Variations in the virulence and doses of pathogenic organisms, supposing that the resistance of the host remains the same, would lead to changes in the reactions. With variations in the conditions of both the soil (the host) and the seed (bacteria and other environmental influences) it is clear that the clinical reactions and manifestations must alter in a corresponding degree. A highly virulent strain of micro-organism falling on a group of men whose resistance is either inherently weak or has been lowered by adverse influences should lead to an epidemic with fulminating attacks; whereas an attenuated infection acting on persons with fair powers of resistance would cause mild attacks, or fail to produce any recognizable result except to confer immunity. Further, a greatly lowered general resistance might allow micro-organisms ordinarily harmless to become pathogenic.

Experimental Epidemiology.

The experimental methods applied to epidemiology by Topley (assisted in the statistical aspects by Major Greenwood) in this country, and by Flexner, Webster, and other workers at the Rockefeller Institute, New York, who produced epidemics in laboratory animals, are throwing much light on the problems of spontaneous epidemics in man—such as the virulence of micro-organisms, the factor of the doses of micro-organisms, the susceptibility of the host, and, what is apparently a different problem, that of the herd. The variations in these factors give rise to permutations and combinations in the causation of epidemics, and further, "it is probable that additional factors not connected with the dosage of the parasite, nor with variations in the biological characters of the parasite or hosts, play a part in the spread of an epidemic" (Topley); and, though secondary infections, the part played by bacteriophages and by diet may possibly affect the relations between the parasite and the host, little is known about the additional factors. These problems of epidemics obviously bear on those of a change of type of disease, but at present they await a final solution.

Changes in the State of the Soil (the Host) as Responsible for Alterations in the Clinical Manifestations.

That continued exposure may be followed by a greater or less degree of immunity, as the result of unrecognized vaccination, in exposed persons is suggested by several observations: the increased resistance of laboratory animals who have survived an epidemic; the growing immunity in schools and institutions to diphtheria and to scarlet fever, as shown by the Schick and Dick tests; the acquired immunity to malaria and yellow fever shown by natives (who may also have had the disease); and in an indirect manner by the severity of epidemics of measles among the inhabitants of isolated countries where the disease rarely occurs—for example, the Faroe Islands (1781 and 1846), Fiji (1875 and 1907) and the neighbouring island of Rotuma (1911), and the Shetlands; the ravages of the common cold when introduced into St. Kilda; and the rapid and fatal course of tuberculosis in persons coming from regions where the disease is unknown. On the other hand, the long persistence of epidemic diseases, especially measles, shows that any racial immunity that can be thus produced is very slow. Webster, however, has brought forward experimental evidence of its occurrence, and on clinical grounds there is some reason to believe that a gradual racial immunity may be developed in the course of years.

Changes in the constitution or make-up of the members of a race must exert some influence on the liability to special diseases, and as the structural architecture of a nation becomes modified by admixture with other races, some alteration in the prevalent chronic disorders would be anticipated. The Jews are particularly prone to some common pathological states, such as diabetes mellitus, obesity, and arterio-sclerosis, and some rare conditions occur chiefly among them, such as amaurotic family idiocy, obliterating thrombo-angiitis, pentosuria, lipodystrophia, and the recently described Niemann's disease (Bloom) which had previously been included in Gaucher's splenomegaly. Draper, who holds that the association of certain diseases with special anthropometric types is as distinct as the anthropometric racial types, speaks of the incidence of the above diseases in the Hebrew race as evidence of "a pathological tendency of physiological nature."

Environment, hygienic conditions, alcoholism, food supplies, and so forth, influence the general resistance and so the susceptibility to disease. It would be interesting to know which of the two factors, the variations in the host's resistance and the pathogenic power and the dosage of the microbe, is more important in the production of infection. According to Webster the mortality of an epidemic depends less on fluctuations in microbic virulence than on variations in the susceptibilities of the hosts; but Topley's critical conclusion is to the effect that in laboratory epidemics the existence of innate differences in the resistance of the hosts is non-proven. In human disease, however, it would seem reasonable to anticipate that impaired resistance would play a more dominant part in favouring infection than microbic fluctuations.

From investigation of the streptococci constantly present in dental root infections Knott and Spencer-Payne conclude that the production of systemic and metastatic infections depends more on diminished local resistance than on the specificity and selectivity of the streptococcal strains.

The increased frequency of subacute and chronic bacterial endocarditis, and of pernicious anaemia if this be accepted, raises the question whether or not this can be correlated with correspondingly great incidence of focal infections, such as dental, tonsillar, or intestinal, which in their turn are due to a widespread diminution in resistance allowing micro-organisms, such as strains of streptococci, usually saprophytic to become pathogenic (Horder; Dawson). The definite increase of subacute and chronic bacterial endocarditis, especially in ex-service men, since the war, with its infecting and depressing conditions, is an argument in favour of the view that a diminished resistance is the probable responsible factor. War has always altered the bills of mortality more by spreading epidemic diseases, such as dysentery, enteric, typhus, cholera, and malaria, than by wounds, though in the great war there were exceptions to this rule on the Western and other fronts. Malaria, which had become extinct in Flanders, reappeared after the advent of infected Portuguese troops and flooding of the country to arrest the German advance, thus recalling the disastrous Walcheren expedition of 1809; the extremely resistant character of malaria to quinine treatment during the war in the Macedonian area is another noteworthy incident.

The adverse circumstances of war, entailing deficiency of food, destitution, overcrowding, and insanitation, may so reduce the resistance of those concerned that diseases not usually prevalent or sometimes previously unrecognized come into prominence. This, as Dr. Horsley Gantt has shown, was particularly the case in Russia, where rickets, famine or hunger oedema, famine cachexia (without oedema), acute enteritis and peptic ulcer, and typhus and relapsing fever (immediately due to animal vectors) became rampant. War oedema occurred during the Napoleonic campaigns and the siege of Paris, and, it is said, in the concentration camps during the Boer war, under the name of epidemic oedema (Maliwa); it has been seen apart from war. Scurvy on land has been a feature of wars since the Middle Ages, and out of 143 epidemics analysed by Hirsch 55 were during hostilities. In Russia recently scurvy was the least frequent of the deficiency diseases, probably because the very great food scarcity led to the consumption of bark

and leaves (Gantt), but it was prominent in some other theatres of the great war, especially in Mesopotamia, where 11,445 cases occurred in the second half of 1916. Tuberculosis increased in all the combatant European nations. In Germany and Austria rickets became extremely common, and keratomalacia and blindness appeared; in Germany there was an increase of jaundice and acute yellow atrophy, quite apart from the factor of syphilis and its treatment by salvarsan preparations. Epidemic encephalitis, which was practically a new disease described by Economo in Vienna in 1917, soon, like influenza, spread over the world, and is still with us. The environmental conditions of stationary warfare created trench fever and trench nephritis, the latter having been seen seventy years before in the War of the Rebellion in North America, and made spirochaetosis icterohaemorrhagica common instead of a curiosity. But from their etiology these conditions were more of the same nature as the epidemic infections—enteric, dysentery, cholera, malaria, and in Russia syphilis—which are an outcome of circumstances favouring mass infection, and they were not, in the main, the outcome of changes in the resistance of the troops.

Enforced moderation in diet was naturally followed by a diminution in disease due to excess (in a sense the reverse of deficiency diseases); thus in Russia Gantt reported a fall in chronic alcoholism, adiposity, appendicitis, and diabetes; the incidence of cholecystitis and gall stones gradually fell from 4.7 per cent. of all out-patients in 1914 to 4 per cent. in 1917, and then dropped suddenly to 1 per cent. in 1918 and 0.8 per cent. in 1919, thus suggesting the importance of overeating as a causal factor. In Germany the war showed a diminution in diabetes, in acute pancreatitis (Wilms), and in arterio-sclerosis, but the last became more frequent in Russia.

It is tempting to associate with the popular cry of "the wear and tear of modern life," and the nervous strain entailed by the more rapid fashion of existence, an increase of functional and organic nervous diseases, of diabetes, high blood pressure, and arterio-sclerosis. Thus in the United States of America, where intensity and "hustle" are characteristic features of life, the death rate of cardio-renal disease far exceeds that due to any other cause, and was responsible for the deaths of the last two Presidents (F. M. Allen). On the other hand, the frequency of functional nervous disease is no new phenomenon, for George Cheyne, in *The English Malady* (1733), estimated that one-third of the upper classes were thus afflicted, and Thomas Trotter, in his *View of the Nervous Temperament* (1807), went one better by putting the incidence at two-thirds of all civilized communities, poor as well as rich. It is difficult, therefore, to be certain, probable as it may appear, that neurasthenia and functional disease are so much commoner now than in the past, for statistics, as apart from impressions, such as those of Cheyne and Trotter, are hardly available, and in the comparatively short period covered by a medical generation or two it is far from easy to estimate accurately the degree of change that occurs. Although telephones, motors, and aeroplanes increase the rate of living, they also have compensating advantages, and wars and alarms were more constant in the past. It is impossible to be certain that there has been an increase of high blood pressure on account of the recent introduction of the sphygmomanometer and the absence of any statistics in the past on this point. The indirect evidence that might be sought from arterio-sclerosis is rendered doubtful by want of exact correspondence between the two, high pressure being only one, and not the sole, cause of arterial change; but arterio-sclerosis was common in ancient Egypt. The greatly increased expectation of life, which is a noticeable result of public health activities, has altered the forms of disease responsible for the bills of mortality; malignant disease, arterio-sclerosis, and chronic cardio-renal disease have become more prominent, whereas tuberculosis has declined.

Changes in Bacteria as Responsible for Alterations in Clinical Manifestations.

Variation and mutation are more readily and rapidly produced in bacteria than in higher animals and man, and serological research has shown the perplexing differences that may thus occur, for example, in the salmonella group (Andrewes, P. Bruce White). Different strains which are morphologically and culturally identical vary in their serological reactions in a remarkable manner; thus *Bacillus paratyphosus* B and *Bacillus aertrycke*, which are indistinguishable morphologically and culturally, are serologically different and also distinct in their clinical effects, the first causing paratyphoid fever, the second acute food poisoning. Differences in virulence may, as Pasteur showed long ago by growing anthrax bacilli at 40° C. and producing a relatively non-virulent strain, be modified by environment, nature of nutrient material, temperature, and possibly other factors.

As a rule, however, the influence of culture media and other laboratory methods is in the direction of diminishing, not of increasing, virulence; there are exceptional instances of increased pathogenicity induced by culture—for example, of the pneumococcus (Felton and Dougherty) and of the meningococcus (E. G. D. Murray); and Flexner and Amoss observed revival of the poliomyelitis virus after being in glycerol for several years. According to Webster, virulent strains come into being by some means more subtle than animal passage.

Associated with the known different types of the typhoid-paratyphoid group, dysentery bacilli (Shiga and Flexner), and to some extent of the pneumococci, there are correlated differences in the clinical manifestations; in cerebro-spinal fever the different types of meningococci have been connected with different clinical reactions; thus, according to Dopter, the predominant infective meningococcus before the European war was Type A (Gordon's Types I and III), whereas later it became Type B (Gordon's Types II and IV); Netter correlated the greater frequency of cases of septicaemia and of lesions, such as rashes, arthritis, and irido-cyclitis, with this change to Type B. Thus changes in the clinical aspects, for example, of enteric fever and cerebro-spinal fever, may be due to infection with different types of the typhoid-paratyphoid group and of the meningococcus. It is reasonable to believe that further evolution of such varieties might be accompanied by such alterations in the clinical picture as to constitute new diseases, as indeed has occurred in the differentiation of typhoid and paratyphoid fevers. The adaptability of bacteria to altered conditions so that a harmless saprophyte living on the surface of the body can be changed, in the laboratory or outside, into a pathogenic micro-organism which invades the body and gives rise to disease was emphasized by the late J. G. Adami (1918), who instanced as a probable example the transformation of some previously harmless diphtheroid bacillus into the virulent diphtheria bacillus to account for the appearance at the beginning of the last century of diphtheria, a disease so sharply cut that it could hardly have been overlooked by all physicians until Bretonneau of Tours gave his classical description in 1821. Among animals hog cholera, unknown before the sixties, when it appeared in the United States, is another example in support of the view that bacteria can and do undergo evolution from a saprophytic to a pathogenic state. As has been mentioned above, the occurrence of secondary infections is a factor of importance in altering the clinical manifestations of an infective disease.

The two variations—in the soil and in the seed—though mentioned separately, must often be combined in varying degrees, and must play an all-important part in the changes in the clinical aspects of disease.

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GLEANINGS FROM THE STORY OF THE THYROID GLAND.

AN ADDRESS DELIVERED TO THE SOUTH-WEST WALES DIVISION OF THE BRITISH MEDICAL ASSOCIATION

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THE accounts of the physiology of the thyroid gland and the surgery of goitre given in the textbooks of my early student days took less than three hours to read and study; it is, however, necessary to point out that this apparent cramming course was not so intensive as it sounds. In the index to the fourth edition (1883) of the standard *Textbook of Physiology* by Michael Foster there is no reference to the thyroid gland. Incidentally, it was in this year that attention was drawn in Switzerland to post-operative myxoedema, as will appear later from the very interesting note sent by my friend Dr. Albert Kocher in reply to a request to let me have an epitome of the work his father, the late Professor Theodor Kocher, had done as regards the subject-matter of my address to you. I am glad to recall that both Professor Theodor and Dr. Albert Kocher visited the area of our South-West Wales Division many years ago and saw examples of our thyroid troubles, to my edification.

On the question of the surgery of goitre I have to confess that for a few years after qualifying I deprecated operations except in emergency—in fact until I visited the great master and pioneer at work in Berne. This attitude, I may add, was due almost entirely to the teaching and practice at my school, for I, being imitative, had operated on a Gasserian ganglion and did an experimental decompression on acromegaly years before I felt justified in doing a thyroidectomy. My view was nurtured in my nonage by reading the seven pages devoted to diseases of the thyroid gland in the standard work *A System of Surgery* (Holmes, vol. 3, 1883), and was fortified years later by witnessing a brilliant surgeon attack a bronchocele and wallow in an operation masked with blood and many sponges, and constantly harassed by a Clover's bag—one special sponge was conspicuously held over the field to deliver fluid if necessary; later he descanted on its value should a gurgling sound be heard indicative of air being drawn into one of the veins! He also pooh-poohed the adoption of an innovation which he flippantly described as a "cut-throat" incision.

When I witnessed the first Kocher operation performed by its originator with deliberation and care, without unnecessary spilling of blood, with unsurpassed surgical cleanliness, with non-variable speed, neither slow nor quick, but a safe "Kocher speed," I instantly became a convert. I was astonished and impressed with the novelty and value of the Kocher screen which completely safeguarded the field of operation from infection from the patient's mouth, from the anaesthetist, and from interested onlookers; the patient's hands also were secured from doing harm.

We re-read to-day, with gratitude to Professor Theodor Kocher, the nightmare which appeared under "treatment" in the *System of Surgery*, and obsessed so many like myself, knowing that it is now gone for ever; there we read such statements as that "fibrous bronchoceles are best treated by setons"; that "the best treatment for cystic bronchoceles is . . . tapping the cyst with a trocar and cannula, emptying it, injecting a solution of perchloride of iron (two drachms to an ounce of water) . . . to be repeated if necessary until suppuration is established"; and that "removal of a bronchocele is usually a grave operation . . . the danger of haemorrhage is considerable." Nevertheless, the volume contains shrewd clinical observations, and exhibits discernment and the true scientific outlook in not accepting as truth that which is not proven. For example, it is said:

> "The endemic form of bronchocele, or goitre, occurs chiefly in association with cretinism and seems to have some hitherto unexplained connexion with geographical conditions . . . the cause commonly assigned—namely, the use of melted snow, or of water impregnated with calcareous or earthy particles—is unsatisfactory. . . . Although the Korrawurrees can get nothing but snow for some months in the year, they are not so subject to goitre as those who live at the foot of hills where there can never be any snow water."

The importance of this quotation will be seen when I come to discuss Professor Kocher's views as to the causation of goitre. From that time to the present the literature on thyroid gland and goitre has grown so voluminous that I can only attempt to bring to your notice a few gleanings, after reading to you the most valuable and interesting *aperçu* by Dr. Albert Kocher of his father's work on the subjects.

NOTES ON THEODOR KOCHER'S WORK ON THE THYROID GLAND.

BY

DR. ALBERT KOCHER.

From 1866 to 1872 Theodor Kocher was assistant of Professor Lucke in Berne. During that time Lucke performed ten goitre operations; of the patients nine died. Two years after having been elected Lucke's successor in the chair of surgery at the University Theodor Kocher, in 1874, published his first paper on the thyroid gland—on the pathology and treatment of goitre. In this paper he published his first thirteen goitre operations, with two deaths only. In this paper he said that there were three forms of operation for goitre: total thyroidectomy, partial thyroidectomy, and enucleation. He said that the total thyroidectomy was an easier procedure "than partial thyroidectomy, but it is a question whether there is any connexion between the total extirpation of the thyroid gland and the altered mental condition I have noticed in one of my cases of total thyroidectomy." His goitre operations were already at that time done on a preconceived plan—he sought in each case to ligate the arteries first. A few years later (1887) he published his first operations for malignant goitre, describing a method of "*évidement*" of soft malignant tumours, especially intrathoracic ones.

In 1883 he published the results of his first 101 goitre operations. He gave at the same time a list of all the goitre operations done down to 1883. He found that with his own 101 cases 240 goitre operations had been performed. In this same paper he detailed his exact method of operating, and then described the consequence of total thyroidectomy. He had reviewed all the cases he had operated on, and in the eighteen cases where total thyroidectomy had been done he found the typical picture of myxoedema. In April, 1883, he read a paper on the consequence of total thyroidectomy at the German Surgical Congress, calling the disease "cachexia thyreopriva."

From that moment he began to treat these cases of total thyroidectomy by making transplantation of pieces of thyroid gland or goitre in many different parts of the human body —skin, muscle, arteries, peritoneum, intestine, etc.—but the effect was only temporary. Later on he reviewed these cases as often as possible; he found that those in which a real total thyroidectomy had been performed died within seven years after the operation (no thyroid tissue could be found at the *post-mortem* examination), whilst those who lived longer had developed a new but small goitre, proving that total thyroidectomy had not been done.

In the years from 1880 to 1890 he studied the question of the etiology of goitre, examining thousands of school children all over the canton of Berne, and examining especially the water at the different places. In 1889 he published a map showing a close connexion between geological formation and the distribution of goitre. At that time, in a public lecture, he urged the Government to have the drinking water in the public schools boiled, or to add iodine to it, in order to prevent goitre. In 1889 he published the results of another 250 goitre operations. In this paper he described his exact procedure in the operation he named "enucleation resection," including the collar incision of the skin. This method of operation for goitre was that used by him in all his goitre operations without any modification; it became and remains to-day the classical method of operation all over the world for nodular goitres. In fact, nothing new has been added to this method of operation anywhere or by anyone in the following thirty-seven years—that is to say, until the present time. This method not only included the collar incision of the skin now universally used, but also gave the exact method of leaving all healthy thyroid tissue behind, and so to assure a sufficient function of the thyroid, to prevent myxoedema, to avoid any lesion of the recurrent nerve and of the parathyroid glands, which became known only later on. Even nowadays, when the bilateral operation of nodular goitre is recommended by many surgeons, Kocher's enucleation resection is done on both sides. Hotz calls it the bilateral Kocher operation.

In 1892 Theodor Kocher published his paper on the origin and prevention of cretinism, in which he described a case of congenital goitre with cretinism, and showed that cretinism was due to lack of thyroid function, and could be prevented by the same measures as those by which goitre can be prevented. This point of view was very much, and for a long time, opposed, but has nowadays become the general opinion.

In 1887, when showing a case of Graves's disease to his students to illustrate a clinical lecture, he demonstrated the hypervascularization of the thyroid gland, and suggested that the symptoms of the disease were due to hyperthyroidism. He was the first to perform a successful operation for goitre in a typical case of Graves's disease. In 1897 he published sixty-nine cases of Graves's disease operated upon, with only four deaths.

In 1895 he read a paper on the action of iodine on goitres. In that paper he suggested that the normal thyroid gland must contain iodine, as the action of desiccated thyroid gland on goitres was the same as that of iodine. Unfortunately, the professor of chemistry at the University of Berne who made the investigation could not find any iodine in the thyroid glands he examined. A year later Baumann in Freiburg published his article on the normal iodine content of the thyroid gland.

In 1895 Theodor Kocher had done 1,000 goitre operations; in 1901, 2,000; and in 1905, 3,000. At the time of his death in 1917 he had personally performed 6,000 goitre operations.

In 1907 he read the opening paper at the German Congress of Internists at Munich, on the pathology of the thyroid gland, and in 1906 gave the annual oration (on the same subject) before the Medical Society of London (BRITISH MEDICAL JOURNAL, 1906, vol. i, p. 1261). This work was the starting-point of modern endocrinology, and contained all what we know at present of the pathology of the thyroid gland. In fact, nothing important has been added to it since. In 1907 he published also an important paper on malignant goitre, describing the different forms in conjunction with Langhans.

In 1908 he described his methods of gland grafting, publishing seventy-nine cases of transplantation in myxoedema, mongolism, and hypothyroidism. He specially recommended to take the transplant from a gland of a case of exophthalmic goitre, thus proving by his successful cases that the gland in Graves's disease is hyperactive and not toxic. In the same year he published the exact analysis of the blood in 260 cases of Graves's disease, showing that the leucocyte formula displayed a typical change, and a few years later he also showed a typical blood change in myxoedema, pointing out that the number of the lymphocytes in the blood was connected with the functional change of the thyroid gland: This close connexion of the lymphocytes and lymphoid tissue to the secretion of the thyroid gland has been established histologically lately by Williamson.

In 1910 Theodor Kocher gave the classical picture of *Iodbasedov*, showing that the use of iodine can produce Graves's disease in certain forms of goitre, and drawing attention to the harm that can in consequence be done by the use of iodine in goitres. Though at present the Mayo school has shown that Lugol's solution can in certain cases of Graves's disease bring about an improvement and make the operation less dangerous, Kocher's observations and statements remain quite true. The exact role of iodine in the disease is, however, far from being explained.

In 1911 Theodor Kocher published the results of 1,200 operations on the thyroid gland in Graves's disease, with 80 per cent. complete cures. In that paper he showed how the disease can be diagnosed in an early stage, and advocated early operation. He described a new lid symptom which appears very early—namely, the contraction of the levator palpabrae superioris when the patient is made to look up and down quickly.

In 1909 he was awarded the Nobel prize for his research work, and especially for his discovery of the function of the thyroid gland. He then gave before the Academy of Medicine of Stockholm an address in which he drew a classical picture of the minor functional troubles of the thyroid gland—hypo- and hyper-thyroidism. These conditions have been described again since without any reference to Theodor Kocher's publication. In the same year he described a functional test for diagnosis of thyroid disease, which consists of an exact blood examination, specification of the leucocytes, and determination of the time of coagulation; thyroid substance is then administered to the patient, and the blood count and coagulation test are repeated, and change in a typical way, according to the function of the gland. The diagnosis of the minor functional troubles, however, as well as the functional method of diagnosis, have not become generally known or used, as being methods too difficult for the ordinary practitioner. Albert Kocher has used this method ever since, and uses it also for all the endocrine glands, with similar results. To this method is due his successes in endocrinologic treatment; he finds it much more exact and sure than the control of basal metabolism.

At the meeting of the Swiss Surgical Congress in 1917, a few months before his sudden death, Theodor Kocher reviewed all his goitre operations, from which it appeared that he had had at that time a mortality of 2 per mille in operations of ordinary goitre and of 2 per cent. in Graves's disease. At the same time he gave a summary of our knowledge of the etiology of goitre, recommending the prophylactic treatment.

It is worth while to recall all that has been done for the advance of our knowledge about the thyroid gland by Theodor Kocher, and, under his guidance, by his people. It is noteworthy that Theodor Kocher never made any fantastic statements, but only drew those conclusions he could really prove, giving entire credit to all that others have contributed to the question. Since his death very little sound work has been done on the subject, but very many theories have been advanced. It is sad to note that the credit Theodor Kocher deserves is not given to him by many authors of the present day.

I feel sure you wish me, as your chairman, to thank Dr. Albert Kocher for an historical contribution which carries the knowledge of his father's work beyond any records I have seen in the English language. Personally I share the filial sentiments expressed in the last paragraph: I know it to be true also in other branches of surgery; still, I am glad to be able to say that things are slowly mending. In my review of Crile's book on the *Thyroid Gland* (BRITISH MEDICAL JOURNAL, December 9th, 1922) it was said: "All will agree with Professor Crile when he states that we wish first of all to express our sense of the obligation of medicine to Theodor Kocher in Europe for the secure foundation laid by him for surgery of the thyroid gland." Again, in the *British Journal of Surgery* (1926, No. 51) G. Scott Williamson said that the term "thyrotoxicosis" (Kocher) is preferable to "forme fruste." I will add one further illustration of a waking conscience from the youngest and latest journal, *The Leech*, of the Welsh National School of Medicine, in which no fewer than nine pages (October, 1926) are devoted to thyrotoxicosis, and due appreciation is shown of the master's work.

Water Supply.

We learn from the letter which I have just read that Theodor Kocher showed himself a scientific seer as long ago as 1889, when he indicated at a popular lecture his view that the cause of goitre was in water, and urged "the Government to have the drinking water in the public schools boiled, or to add iodine to it, to prevent goitre." It is evident that the late battle-ground regarding the cult

of iodine and its appraisement in surgical cleanliness has been shifted to the medical preventive side in relation to goitre among school children. The value of the letter will become apparent when I read an extract from a very notable contribution on the thyroid gland by Charles H. Mayo and Henry W. Plummer, published in 1926, and described in the preface by the chairman of the Beaumont Foundation Committee as the most authoritative pronouncement upon the subject ever given: "At the time of his (Kocher) death in 1917 approximately 5,000 cases of goiter had been operated on at his clinic. In 1917 the practical application of a method to prevent simple goiter was started in the public schools of Akron, Ohio, by Marine and Kimball." There is a reference to a somewhat similar plan in my review, already referred to, of Crile's book. I there recalled the fact that Kocher held goitre to be water-borne, due to "a hitherto unknown micro-organism, or more probably a chemical agent . . . made inoffensive by boiling the water. That is why he proposed, forty years ago, to boil all the drinking water, especially at the schools, to prevent goitre. But at the same time . . . he proposed to give the children twice or three times a year during some weeks a small dose of iodine to prevent goitre. He had then a malt preparation made with iodine and iron." This preparation he gave to his own three sons three times a year. "The result is that [the] three brothers have absolutely normal thyroid glands." (BRITISH MEDICAL JOURNAL, 1922, ii, 1123.) It is interesting to recall that in 1854 it became known that cholera was a water-borne disease, although the actual cause was not then discovered; we are to-day in a somewhat similar position with regard to goitre, but are very near the goal.

Incidence of Goitre in Wales.

I had hoped that the inquiry instituted by the Ministry of Health into the incidence of goitre in our country would have been ready before this, as it would have been of great interest, but unfortunately I heard from Sir George Newman, who has given me much help, that the memorandum on the subject had not yet been published. It is now over twenty years since the late Dr. Williams, M.O.H. Glamorgan, and I instituted an inquiry into the incidence of goitre, and received replies from 231 medical practitioners. In a paper read before the Medical Society of London on April 22nd, 1907, I reported that "as far as I can judge from analysis of the evidence collected, the distribution of goitres in Wales and Monmouthshire supports the view that the causation of this disease is to be found in drinking water."

Goitre is found in almost every country in the world from sea-level to 10,000 feet above, wherever soil exists for man to live on. In Wales it is fairly common in counties bordering the sea, and also in patches inland—for example, Gwendraeth valley, Llanidloes, Vale of Clwyd. It is found on soil which covers rocks a million, ten million, or a hundred million years old; the chemical composition of the geological formation is apparently of little importance—the surface soil is the only factor left that counts.

Goitre is fairly common over the ordovician rock in Cardiganshire, where, in cuttings or quarries, the mother rock may be covered with a crushed layer, called "rab" locally—evidence of the weight and direction of the enormous ice sheet that ground and rounded off the general contour of the land. There is often very little soil over the "rab"; the rock is notoriously deficient in lime salts, but goitre is not uncommon.

The Cause of Goitre—Micro-organism, Iodine Deficiency, or Endocrine Imbalance?

Evidence is accumulating so strongly, that one of Kocher's double-barrelled predictions of "the unknown organism" as the cause of goitre will, I think, shortly be fulfilled—for example, that from the Mayo Clinic: "Rosenow has isolated an anaerobic Gram-positive diplobacillus-like organism from the excised thyroid gland in twenty-five of thirty-two cases of goitre." "Of the sixty-eight animals injected with strains from sixteen patients (ten with exophthalmic goitre and six with non-toxic goitre) and examined soon after injection, thirty-four (50 per cent.) developed gross lesions in the thyroid."

The part iodine plays in the etiology of goitre I leave in the able hands of Colonel McCarrison, I.M.S., whose valuable work on the etiology of goitre is well known, and who has now in the press a report of his experience at the Lawrence Royal Military School, Sanawar, Punjab, India, which, in its precision, almost amounts to a scientific experiment. The work was commenced in 1913, and observations have been continued ever since. [The story is told in the paper by Colonel McCarrison published in this issue at page 94.]

Upon this aspect of the subject I have consulted Professor H. J. Fleure of the University College of Wales, Aberystwyth, whose knowledge, alike of the geology and anthropology of Wales, is unsurpassed. He writes:

> "While we have made observations as conscientiously as possible on goitre, I cannot say that they have led to any very clear conclusions as to any one particular cause. We find that the administration of iodine has been undoubtedly valuable in a number of cases. It has been given in the form of iodized table salts. Whether the importance of this is the direct contribution of iodine to the system or whether the iodine acts as an enemy to some factor of the disease, we do not presume to say. Alongside of this we have found the insistence on boiled water very important, but whether this implies that the disease is connected with some filter-passing germ or of some chemical which is altered by boiling, we do not know. There is no doubt that, along with curative measures such as the above, it is very important to take measures to maintain and develop the resistance, and this is done in two ways. In the first place, therefore, attention should be given to the teeth, which for some reason which needs investigation are notoriously bad in West Wales. In the second place, Miss Fleming has urged the use of an improved vegetable and fruit diet, including fruit and fresh greenstuffs. The fruit is chiefly apples and oranges. We cannot but think that one of the problems involved is some question of a balance of endocrine secretions, and this is apparently very liable to be altered by inbreeding, so the troubles connected with this alteration of balance are specially abundant among the peoples of isolated districts."

Details in Operative Technique.

Before concluding my somewhat discursive remarks I venture to draw attention to the importance of carrying out some details in operative technique which facilitate work and give the best results in most operations on the neck and specially those for goitres.

The first is to follow the direction of Kocher's collar incision in all operations on the neck, whether small or large, and to avoid making a longitudinal incision; in this way a hazardous bloody operation is converted into a practically bloodless one without any risk of injury to nerves, for the surgeon sees every step before moving on.

The second is to place the patient in what I described in 1907 as the "Albert Kocher" position, which means a semi-recumbent or anti-Trendelenburg position, by which the superficial veins of the neck are converted into empty flat tubes during normal respiration.

The third is to remove sutures or clips and drainage tube within twenty-four hours after operation; this avoids all scarring beyond the inevitable thin white threadline left by the collar incision. It is perfectly safe to remove silk sutures—to which I am biased, by imitation of Kocher—but it is necessary to remove only an inch at a time, then secure apposition by fixing half-inch wide gauze strips with collodion crosswise to the collar incision. In order to avoid any possible risk of the buried subcutaneous portion of the silk suture, it is wise to paint the skin beforehand with iodine, then pull gently on the suture to enable the surgeon to cut the portion that was subcutaneous, thus avoiding withdrawal through the wound of the exposed portion of the silk suture, which is of the finest size for the smallest skin-needle.

Lastly, it is important in operations to mark the skin at right angles, in two or three places, before making the incision, according to its length, to serve as landmarks in restoring the skin and subcutaneous tissues to their normal disposition. I described the method in a paper read before the Medical Society of London in 1907, but as I did not explain how the idea originated, I do so now to illustrate how an idea sometimes starts from an accident. Of the 73 operations recorded, 55 were performed under local and 17 under general anaesthesia. In the remaining case no anaesthetic was employed owing to breaking of the hypodermic syringe, and I proceeded with the operation by transfixing the skin after the fashion of pre-anaesthetic days. After finishing suture of the skin with continuous

silk I discovered that a mole had been divided and that the sutured halves were at least half an inch apart. I removed the suture in order to restore the mole, which subsequently formed a landmark. I copied this hint and applied it in every operation afterwards; it is of some practical importance, more especially in the restoration of skin to the normal; the surgeon quickly realizes by marking the skin with the point of a needle (Moynihan) how almost impossible it is to get normal alignments without skin landmarks.

Arthur Keith, discussing the law of collateral or "uniform evolution" "as certainly valid for the order of animals to which man belongs," says he does not think it possible that the

"Mongolian stock had arisen from an anthropoid of the orang type, while the African negro had drawn his origin from the ancestral type of the gorilla . . . there are certainly superficial points in which the Mongolian type resembles the Bornean anthropoid; . . . Cretins of all races are alike. They cease to be Europeans or Asiatics in appearance. Cretinism is the result of a defect of the thyroid gland: . . . so potent is this gland in fashioning the features that a cretinized English child might be taken, by a superficial observer, as brother to a Chinese cretin. It is also so, when the pituitary gland becomes disordered. . . . The glands of internal secretion are parts of the machinery of evolution, not only of man but of apes. The resemblances of the orang to the Mongolian type are due to thyroid dominance in the action of their glands of internal secretions." (*Antiquity of Man.*)

The youthful Dr. Rip Van Winkle who went up the Catskill Mountains in 1883 came down to-day to find strange things to convey his successor to consultations by road and by air; he read strange records of the value of *x* rays, radium, and cardio-electrography in Graves's disease; but the strangest thing of all was to listen to a wireless discourse from the wonder hospital which had grown in thirty years from a cottage hospital with a staff of three to that of a University Medical School with a staff of 301—the far-away Mayo Clinic—on the revelations in the physiology of the thyroid gland, and on revolution in the surgery of goitre, carefully engineered and successfully launched from Berne.

AN EXPERIMENT IN GOITRE PREVENTION.

BEING

THE FURTHER HISTORY OF GOITRE AT THE LAWRENCE ROYAL MILITARY SCHOOL, SANAWAR, PUNJAB, INDIA.

BY

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IN a report on the causation of goitre at the Lawrence Royal Military School, Sanawar, Punjab, Northern India, submitted to the Indian Research Fund Association in 1914[1] it was shown that the disease was not due to any chemical substance (lime, magnesium, etc.) in suspension or in solution in the water supply. The conclusions were drawn that goitre in Sanawar was due to the presence of living micro-organisms in the water supplied to the children for drinking purposes; and that the disease could be eradicated by the provision of a chemically and bacteriologically pure water.

Goitre had been endemic in Sanawar since the foundation of the school in 1848. So great was its prevalence that in some years as many as 50 per cent. of the children suffered from it; while after a residence of eight years in the school about 80 per cent. became goitrous. At the time my investigations were begun (1913) no less than 66 per cent. of girls above the age of 16 years were the subjects of noticeable goitres. Many of the swellings were slight and some of them transitory, but a high proportion were true goitres (not merely physiological swellings) which caused noticeable disfigurement. Full details regarding the incidence of the disease and the investigations which led to the above conclusions will be found in the report referred to.

Following the recommendations made in this report a new pipe water supply, from the neighbouring station of Kasauli[1] was provided in 1918. Thereafter goitre began to diminish and has now disappeared. Captain P. Savage, I.M.S., the present medical officer of the school, in a letter to the principal, of which a copy was sent to me on January 30th, 1926, writes:

"One year's experience has convinced me that goitre is now entirely absent. I have not seen a single case, and I propose to mention in my annual report that goitre can now be considered a thing of the past."

Similar reports were received from previous medical officers. Thus one states, in a letter dated June 21st, 1921:

"There have been no fresh cases of goitre noted this year. The disappearance of goitre is probably due to the fact that the water supply was changed from the Sanawar spring to the Kasauli supply. This fact was intimated to the Inspector-General, Civil Hospitals, Punjab."

Again, on October 17th, 1921, the Assistant Director of Medical Services in India reported that "Since the Kasauli water supply has been piped to Sanawar there has been a complete absence of goitre."

In the autumn of 1923 I revisited the school, with the object of seeing for myself what was then the incidence of the disease. I found one boy, aged 16, who had still some enlargement of the thyroid, and ten girls, at or over the age of puberty, who were the subjects of small goitres, some barely noticeable. The remaining 489 children were free from goitre. The incidence of the disease was thus 2.2 per cent., or no greater than the incidence of thyroid enlargement among school children residing in non-endemic areas[1] such as Delhi (2.2 per cent.), or Kasauli, from which the new water supply was derived (2.4 per cent.). It was no greater, also, than in another Lawrence Royal Military School in Southern India, at Lovedale in the Nilgiri Hills. This school is situated in a region where the iodine content of the soil is very high (300 to 400 parts per 10 millions); at a recent examination of 452 of the children I found ten cases of visible goitre, involving both lobes and the isthmus, in 162 girls; and one case among 290 boys. Of these eleven cases two were in girls who had acquired the swelling at the Sanawar school. It had not disappeared following their transfer to the Lovedale school. My experience has been that in any community of school children there will always be found a greater or smaller number of thyroid swellings which bear no relation whatever to endemic influences.

It is clear, then, that goitre, which had been endemic in Sanawar for seventy years, has now disappeared; and that its disappearance has been due to the introduction of a new and protected water supply. Its eradication within the short space of three years is, so far as I am aware, unparalleled in the history of goitre prophylaxis. Similar instances are to be found in the literature,[2] but none in which the endemic has been so carefully followed throughout its whole course nor in which the measures decided upon for its eradication have followed more exhaustive study of the local conditions.

The new water supply may have caused the disappearance of the disease either because it increased the iodine intake of the scholars or because it was a bacteriologically pure water, whereas the old supply was grossly contaminated.[1] I have the assurance of the principal, contained in his letter of May 9th, 1923, that "no changes of any importance were made in the diet between 1914 and 1922." There was, therefore, no increase in the iodine intake by way of the food. Consequently, the question to be decided was whether or not the new water supply contained more iodine than the old. The Chemical Examiner, Punjab, in his report on the new water supply, dated March 18th, 1922, stated that "The sample is of very good quality chemically and remarkably free from impurity. It contains only traces of lime and magnesium and no iodine." I then caused 25 gallons of the new supply, as delivered by pipe at Sanawar, to be evaporated to dryness after the addition of sodium carbonate. This was done under the supervision of the Director, Central Research Institute, Kasauli (Lieut.-Colonel S. R. Christophers, I.M.S.). The residue was sent to the Chemical Examiner, Punjab, for estimation of its iodine content. In his report, dated August 2nd, 1923, he stated that iodine was not detected in any form in the residue.

The recent work of Fellenberg, McClendon, Hercus, and others, having emphasized the difficulties attendant on the estimation of iodine in soils and water, led me to think that more refined methods of analysis might possibly reveal significant differences in the iodine content of the two waters. Accordingly on my return to India in 1925, so as to settle the matter finally, I secured the co-operation of three chemists: Major C. Newcomb, M.D., F.I.C., I.M.S., Chemical Examiner to the Madras Government; Mr. B. Viswanath, F.I.C., Agricultural Chemist to the Madras Government; and Dr. R. V. Norris, D.Sc., Professor of Biochemistry, Indian Institute of Science, Bangalore. Each undertook to examine independently the published methods of iodine determination in soil and water, and to select the method which he found gave the most reliable results or to evolve another for himself. While their preliminary investigations were in progress I obtained, through the kindness of Captain P. Savage, I.M.S., medical officer of the school, and of Lieut.-Colonel J. Cunningham, I.M.S., Director of the Pasteur Institute of India, Kasauli, samples of soil and of water concentrates from both Sanawar and Kasauli. The concentrates of the old and of the new water supply were prepared, with minute attention to detail, by Colonel Cunningham, after the manner recommended by McClendon. Meanwhile each of the three chemists had evolved a method of iodine estimation which appeared to be satisfactory; their methods, however, differed in detail. The samples of soil and water concentrates were then sent to them at Madras, Coimbatore, and Bangalore respectively; each chemist being unaware of their source. The results are given in the table.

Sample.	Iodine Content in Parts per 10,000,000.		
	I.	II.	III.
Old water supply of Sanawar school	1.0	Trace	Trace
New water supply of Sanawar school ...	1.0	Nil	Nil
Sanawar hillside soil	35	16	30
Sanawar garden soil	8	5	30
Kasauli hillside soil	45	32	10
Kasauli garden soil	10	4	0

Column I, Major Newcomb's results; Column II, Mr. Viswanath's results; Column III, Dr. Norris's results.

The details of the methods of iodine determination adopted by the three observers will be given in a future report on the relation of iodine in soil and water to goitre, when the various technical difficulties and sources of error will be dealt with by them. Meanwhile it may be said that their results, arrived at independently, show a close correspondence and a general agreement* in regard to the following points with which this paper is mainly concerned:

1. The soils and waters of both Sanawar and Kasauli are poor in iodine.
2. There is no significant difference in the iodine content of the soil in the two places.
3. The old water supply of the Sanawar school contains appreciably more iodine than the new, which contains little or none; thus confirming the previous reports of the Chemical Examiner, Punjab, in regard to the new supply.

It is obvious, therefore, that the disappearance of goitre from the school cannot be attributed to the presence of iodine in the new water supply.

The conclusion arrived at in my first report, that endemic goitre in the Sanawar school was due to the bacteriological impurity of the old water supply, is thus substantiated; and the prediction that it could be eradicated by the provision of a chemically and bacteriologically pure water supply has been justified by the disappearance of the disease.

REFERENCES.

[1] McCarrison, R.: *Indian Journal of Medical Research*, 1914, i, No. 3, pp. 1 to 53.

[2] McCarrison, R.: *The Aetiology of Endemic Goitre*, London, 1913.

* The differences in the results of the three observers are not significant; they fall within the limits of experimental error.—R. McC.

CARCINOMA OF THE COLON.

AN ADDRESS GIVEN TO THE GLOUCESTERSHIRE BRANCH OF THE BRITISH MEDICAL ASSOCIATION

BY

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THE results of primary operation for carcinoma of the colon are good, contrasting favourably in this respect with cancer of the stomach or rectum. It generally kills by causing intestinal obstruction, and if we avoid this by removing the growth at an early stage the hope of cure is a good one. The disease usually originates as an ulcer or occasionally as a papilloma. It spreads slowly in the wall of the bowel and takes a long time to infect the lymphatic glands or to invade the liver through the portal vein. Mr. F. T. Paul[1] has pointed out that there are three main types of this disease. I will quote his words.

"The three varieties of carcinoma are: (1) The large soft fungating 'encephaloid' type; (2) the small hard 'scirrhous' type; and (3) the infiltrating 'colloid' type. All may be said to be primarily columnar-celled growths originating in the intestinal glands, and all ulcerate; but they follow different paths of evolution, and attain different degrees of malignancy which it is important to recognize. The scirrhous variety is always unmistakable. It produces the hard ring stricture of the bowel, and is more common than colloid cancer, but much less frequent than the soft fungating type. This latter may usually be as easily distinguished from the colloid form of growth by the following characters: It is softer to the touch. There is a good deal of fungating growth within the bowel, but generally not much solid infiltration of the bowel wall. There are usually numerous large soft glands in the neighbouring mesentery, which are septic and not malignant. In colloid cancer, on the other hand, there is a hard-edged ulcer with no fungation. There is dense hard infiltration of the bowel wall, often attaining a thickness of from one to two inches, and giving it a solid feel. The glands, if affected, are not soft, but hard and glistening. . . .

"*Misconceptions Regarding Cancer.*— . . . The really important misconception, however, concerns the relative malignancy of the three varieties of cancer. Usually the big, fungating, encephaloid type of growth is regarded as the most malignant; the colloid as being intermediate, and the scirrhous, or ring stricture, as the most benign. This arrangement is entirely wrong and out of accord with clinical experience. The colloid is the most malignant type, the ring stricture comes next, and the fungating type is the best—it being one of the least malignant kinds of cancer met with in the body.

"It is a clinical fact of considerable importance, to which I have often referred at our local medical society, that the up-growing forms of cancer are essentially less malignant than the down-growing, ulcerating and shrinking types.

"The most common sites for the fungating type of growth are the rectum and caecum, though it often occurs in the sigmoid, and occasionally at any other part of the large bowel. Colloid cancer chiefly selects the rectum, and ring stricture the sigmoid, though neither is limited to these regions."

SYMPTOMS AND SIGNS.

The symptoms and signs are insidious in their onset and generally develop in a patient approaching, at, or over middle age. They consist of "indigestion or flatulent dyspepsia" of the intestinal type, with alternating diarrhoea and constipation; there are many urgent calls, with more or less futile attempts, to empty the bowels; naturally formed motions are rarely passed, but small pieces with, perhaps, blood and slime. Occult blood is generally found when the patient has been for some days on a meat-free diet. The abdomen gets somewhat full and distended, colicky pains are frequent and are associated with visible peristalsis. A tumour is often felt on bimanual examination of the loin or pelvis, but it is difficult or impossible to feel a growth of the splenic flexure.

Radiographic examinations after opaque meals or enemata are often of great value, especially if the findings are constant and repeated, but there are many fallacies associated with this method. Examination with the sigmoidoscope is far more reliable as regards the part of the bowel that is within its reach, but the instrument has to be used with care and discretion. In many early cases the diagnosis cannot be established without exploratory operation, and this should be undertaken whenever there is grave doubt, for it allows the growth to be removed in its early and hopeful stage.

When chronic obstruction is succeeded by acute, often the result of inflammation or plugging of the stricture by

a scybalum or sometimes by a faecalith, the abdomen becomes greatly distended, but its shape and size are very different from those due to obstruction of the small intestine, one or both flanks being full and prominent. The size and shape of the caecum become evident during spasm and pain, and other parts, such as the transverse or sigmoid colon, may become visible during colic. The patient himself may point to the site of the obstruction, having noticed pain, and especially gurgling, at a particular spot, or the medical attendant may make this observation.

Diagnosis.

Cancer of the colon is often mistaken for other diseases of the colon, especially ulcerative colitis, dysentery, and sprue. We ought to be very uneasy about the diagnosis of chronic colitis, and always seek the cause of it by thorough examinations. Many patients who have been treated for one or more years for ulcerative colitis come at last to the surgeon too late for radical operation; the same is true of dysentery and sprue.

Diverticulitis of the pelvic colon mimics carcinoma to a remarkable degree, but in this disease there is usually a history (sometimes of over twenty years) of recurrent attacks and fever, with incomplete obstruction and pain, perhaps swelling, in the left iliac fossa. There is rarely any history of blood and slime, and careful radiographic examinations after opaque meals and enemata demonstrate the presence of diverticula in the colon. The most conclusive evidence is the finding of opaque spots in the bowel after the meal or enema has been evacuated, some of the opaque material having been retained in the diverticula. In the interval of the attacks these patients are often quite well. The diagnosis is most important, for operation is not always the best treatment for diverticulitis. It is possible, however, for the two diseases to coexist, as actually happened twice in my experience.

Papilloma and adenoma of the colon may be mistaken for carcinoma. One of my patients, a middle-aged woman, had severe remittent rectal haemorrhage on and off for nineteen years; when at last operation was performed there were five papillomata of the pelvic colon, one of which had become carcinomatous at the base.

Appendicitis with chronic suppuration has not uncommonly been mistaken for carcinoma of the caecum or ascending colon, but here there is usually a definite history of acute and sudden onset of pain with fever. In some cases exploration is necessary to settle the diagnosis.

Tuberculosis of the caecum, forming a massive swelling, sometimes simulates carcinoma, and so does volvulus of the pelvic colon, causing acute obstruction. In several cases where I expected to find carcinoma of the colon I fortunately only found pericolic bands, division of which brought cure. In some instances a gall stone, impacted in the narrow pelvic colon, has been mistaken for cancer, and in some a faecalith has led to the same mistake.

In old people ordinary faecal impaction with irritating diarrhoea has often been mistaken for cancer, but the mistake is easily discovered upon examination of the rectum and finding scybalous masses there. Rectal bleeding due to other causes has led to error. For instance, I remember a man who had very severe rectal haemorrhage, causing him to faint; sigmoidoscopy some days later showed blood in the pelvic colon and an apparent stricture. Carcinoma of the colon was diagnosed, but this diagnosis was not confirmed at the exploration; the source of the bleeding was found to be internal piles, which were successfully removed.

Almost any other abdominal tumour may be mistaken for carcinoma of the colon, or vice versa. I recently mistook a distended and very large gall bladder, measuring eight inches in length, for a growth of the caecum and ascending colon, but the absence of serious intestinal symptoms, and especially the history of previous attacks of biliary colic, should have prevented this mistake.

The diagnosis is not complete until it has been ascertained whether the growth is removable, therefore it is vital to look for signs of secondary growth in the liver and peritoneum. Rectal or vaginal examination often discovers secondaries in the pelvic peritoneum, rendering a radical operation impracticable. Before advising such a severe operation as removal of cancer of the colon it is also necessary to ascertain the state of the general health and of the viscera, especially of the kidney.

Treatment.

1. The ideal is to discover the growth early and remove it without delay, thus to cure the patient at one operation. End-to-end union, after removal of the growth, is nearly always the best and most economical, but for growths of the caecum, ascending colon, and hepatic flexure, for which the lower six inches of the ileum, the caecum, and the right colon have to be removed in order to effect a cure, it is better to make an end-to-side union between the ileum and transverse colon.

To attain success in these resections careful preparation of the patient, accuracy in sewing, perfect haemostasis, scrupulous cleanliness, and free drainage are essential. In order to drain the colon freely and prevent gaseous distension and undue tension upon stitches it is sometimes necessary to add caecostomy or to use a rectal tube passed up into the colon through the anastomosis.

Case 1.

A medical man, aged 48, was one of nineteen children. His father and one brother died of cancer of the bowel. He himself had suffered for years from piles from which bleeding had often occurred. For the last two years there had been a good deal more bleeding from the bowel, and this had often been associated with pain in the left iliac region. In March, 1910, the bleeding became more severe and came on quite apart from defaecation. He gradually got into poor health and wasted a good deal, and a fortnight before I saw him he fainted. Mucus and much blood escaped from the rectum. The patient saw several consultants and was referred to me for operation on October 19th, 1910.

I felt an elevated growth high up in the rectum. I could not find any stricture, but only what appeared to be an ulcer occupying one side of the bowel. During the examination the growth receded out of reach, clearly showing that it was fairly high in the bowel but had intussuscepted into reach. Then the receded growth could be felt through the anterior wall of the rectum. It was thought that an abdomino-anal resection would be the best operation.

The bowels were well cleared out and the patient was kept at rest for three days and carefully prepared on a diet leaving little residue. Morphine, gr. 1/3, and atropine, gr. 1/150, were injected an hour before the operation on October 22nd, 1910, and axillary saline infusion was also commenced and continued during the operation, five pints in all being given. Open ether was administered by Mr. Plumtre. The abdomen was opened through the lower and inner part of the left rectus and the growth was at once found in the lower part of the sigmoid loop about nine inches from the anus. It was freely movable, and some enlarged glands were felt in the meso-sigmoid. The liver and lumbar glands were normal. The high Trendelenburg position was adopted, and it was decided to resect the growth abdominally and join up the colon end to end. This was carried out, nine inches of bowel and the lymphatic area being removed. Microscopic examination of the enlarged glands showed inflammatory changes only. End-to-end union was performed with two silk sutures. The first was a continuous Connell and the second a continuous Lembert suture. The packs were removed and the rent in the mesentery was closed as far as possible with catgut sutures, and the bowel was replaced. The peritoneum was cleansed of blood and the wound was completely closed in layers. The operation lasted an hour and a quarter, and at the end of it the patient was not collapsed. On opening the piece of bowel removed it contained no faecal matter, only a little blood-stained mucus. An ulcer, two inches long and one and a half inches wide, with rampart-like edges was seen; the mucous membrane around it was much congested and inflamed. The ulcer did not encircle the bowel or appreciably narrow the lumen; it had clearly obstructed and caused pain only by intussusception. There were very few enlarged glands in the mesentery, except quite close to the growth, which was a columnar-celled carcinoma.

The patient did very well; the wound healed without any trouble, and he left the home within a month. He was at work in his busy practice within two months of the operation. He remained well for thirteen years and then died of an acute abdominal catastrophe—probably ruptured duodenal ulcer.

2. If obstruction has already developed an attempt should be made to overcome this by rest in bed, restriction of diet, and the use of enemata, but too much time must not be wasted on this endeavour. If enemata are successful the patient may be carefully prepared, as above, for a one-stage radical cure; but if the bowels refuse to act, prompt relief by operation must be given.

(*a*) *Caecostomy.*—In very grave cases, when the distension of the caecum is visible, blind caecostomy (Stiles) may be performed under local or general anaesthesia. This is practically devoid of risk. Subsequent examinations may reveal the cause and site of the obstruction and a secondary

operation may be successful in removing or short-circuiting the growth. In most cases of acute obstruction, however, the cause and site are not clear, therefore an attempt to perform a blind caecostomy may be disastrous. As already mentioned, the colon may be obstructed by bands, volvulus, or foreign bodies inside it; in one famous case a medical man suffering from acute obstruction was first explored in the left loin, in an attempt to perform left lumbar colostomy, but the descending colon was empty; a similar attempt on the right side was also futile, the ascending colon being empty. The patient died on the table, and at the autopsy the cause of obstruction was found to be a gall stone impacted near the lower end of the ileum. For these reasons I prefer to explore the abdomen, very carefully and gently, under light general anaesthesia, with the hand introduced through an opening in the right iliac region only just large enough to admit the folded hand. The liver is examined for secondary growths, the site and cause of the obstruction is discovered, and, if it be a growth, its removability is ascertained. While doing this, in a recent case, the caecum was discovered in the splenic area, showing how futile a blind caecostomy would have been. If there are no secondary growths and the primary carcinoma is removable, valvular caecostomy is performed, but if there is no hope of resection, either a short-circuit or a colostomy is made, for caecostomy as a permanent means of draining the bowel is intolerable, on account of the frequent and irritating fluid actions. As a rule it is worth while to run a slightly greater risk in these cases in order to avoid an artificial anus.

(*b*) *Colostomy* is better than caecostomy for certain cases: (1) when the growth is irremovable and short-circuiting is impracticable, as mentioned above; (2) when the obstruction is low down in the colon For instance, when the growth is in the pelvic colon and the bowel just above it is greatly distended and more or less paralysed, caecostomy does not provide sufficient drainage, so that the descending colon remains full and inflamed for several weeks, making it difficult or impossible to perform a satisfactory secondary resection. Therefore in these cases a colostomy, slightly above the growth, is the best preliminary treatment.

(*c*) *Short-circuit.*—As already mentioned, this is very successful as a permanent measure when the growth is irremovable. It is also valuable in some cases when the obstruction is not too severe and the patient is fairly fit. For instance, a lady with a growth at the splenic flexure, causing complete obstruction for a fortnight, was treated by making a short-circuit between the middle of the transverse and pelvic colon. Nearly two months later the growth, which had shrunk to half its former size, was successfully excised, the patient remaining well now, six years later. In this case the resection was made easier and safer by the preliminary short-circuit, there being no need to make an anastomosis but only to tie and invert the ends of the colon near the one already made.

(*d*) *Primary Resection after the Method of Paul.*—Whereas it has been proved that primary resection with restoration of the natural channel is very dangerous treatment for acute and complete obstruction of the colon, the mortality being well over 50 per cent., it has not been sufficiently appreciated that the danger lies not so much in the removal of the growth (provided it is well and swiftly done), but rather in the union of soft, inflamed, and damaged tissues, which too often in the past led to leakage at the line of suture, which cannot stand any gaseous or faecal distension. When free drainage is provided the resection and even reunion may not be too dangerous. In many acute as well as chronic cases the method of Paul (often wrongly called that of Mikulicz) is safe, the growth being removed and the ends of the colon above and below being drained with Paul's tubes. The artificial anus thus made may close spontaneously or be closed later by a comparatively safe minor operation.

The chief objection to this method, which is rarely suitable except for mobile pelvic or transverse colons, is that the lymphatic glands cannot be widely removed. In spite of this, however, very good permanent results have been obtained.

CASE II.

A married woman had suffered for many years from constipation, which during the last few months had been getting worse; no blood or slime had been noticed. In the middle of December, 1910, she was seized with severe abdominal pain; the bowels were not opened and she passed no flatus. During the following fortnight the patient was kept in bed and was given opening medicine without avail, generally vomiting it; she had one enema without effect. She took little food and had very little sleep. At the end of the fortnight the pain and sickness were better and she was sent to Guy's Hospital. The abdomen was greatly distended and three times during half an hour visible peristalsis could be seen about the position of the caecum. The patient was then suffering from severe colic. She had shifting dullness in the flanks. The abdomen was neither tender nor rigid. The temperature was subnormal. Chronic intestinal obstruction, due to growth of the colon, was diagnosed, and it was thought probable that it was somewhere about the transverse colon. Rectal examination revealed no growth in the pelvis.

Operation.

On January 2nd, 1911, the abdomen was opened by displacing outwards the lower part of the right rectus. The caecum was at once seen to be distended, and the small intestines were also very distended. A large amount of clear fluid escaped from the abdomen. On passing the hand into the pelvis a growth was felt about nine or ten inches from the anus. It was a small contracting carcinoma. The bowel above it was greatly distended. It was seen that, although it would be possible to make an anastomosis between the ileum and the bowel below the growth, it would not then be possible to perform a secondary resection of the growth. Moreover, the patient's condition was bad. Therefore a small muscular separation incision was made in the left flank, and a loop of bowel containing the growth was brought out through this wound and fixed in position by means of a Spencer Wells forceps passed through the mesentery and clamped on a pad. The incision was then closed and covered with a sealed dressing. A roll of gauze was wrapped round the base of the loop of sigmoid, and then a Paul's tube was tied into the distended bowel, one inch above the growth. The patient was infused about four pints during the night. She made very rapid improvement and regained her natural colour, her face becoming much fuller. She ate and slept well.

Five days later, on January 7th, the growth was removed with the cautery, the lower limb being divided first about two inches below the growth, then the mesentery, a wedge of which was removed, and lastly, the bowel, about three inches above the growth, was divided. The vessels were tied and the two ends of the bowel were sewn together, starting at the mesenteric border and proceeding in each direction towards the free border, leaving an aperture just large enough to admit a small Paul's tube, which was tied in. Two days later the tube was removed.

About three months later, the colostomy not closing, an operation was done to close it and to remove the glands more freely, but unfortunately a pelvic abscess formed and had to be drained, with the result that all the faeces escaped at the wound and none through the rectum. After some weeks the patient was discharged, to come in later for further treatment, but, at the end of three months, she cured herself by passing a bougie through the anus and rectum into the pelvic abscess. From this time the bowels began to act naturally and the wound healed. She was seen, in good health, eleven years later.

(*e*) *Resection with Drainage by Rectal Tube.*—In some cases, when the growth is in the pelvic colon, primary resection may be carried out with safety, provided the upper bowel is well drained by a rectal tube passed up through the anastomosis.

CASE III.

A man, aged 51, came to see me on April 29th, 1918. He had not had his bowels open for eight days. He had suffered much pain in the abdomen and was more or less collapsed, with a subnormal temperature; he had not vomited, but had felt very sick. He also had a distended abdomen, and the bowels could be seen through the abdominal wall to be in violent peristalsis. He was particularly shrivelled and thirsty because he had abstained from both drinking and eating more than a minimum for three or four days, showing wonderful strength of mind. This had brought him into a very low state. On examining by the rectum I could feel a hard lump in the recto-vesical pouch, between the bladder and the rectum. This was thought, and proved, to be a growth in the dependent loop of the pelvic colon. More enemata were tried without success, and the next day an incision was made to the left of the mid-line, the loop of colon containing the growth was brought out of the wound and the greater part of the pelvic colon, with its mesentery, removed. End-to-end union was made. Then a long tube was passed up into the colon above the anastomosis and sewn to the skin near the anus.

The patient did well, returning home three weeks later. He was heard of as being in good health eight years later.

After-Treatment.

The after-treatment of patients submitted to colectomy is just as important as their preparation before the operation. The commonest error is the too early and too frequent use of purgatives, whereas the ideal is to let the bowel rest in peace. As soon as possible I give half to one ounce

of pure liquid paraffin morning and evening and get the patient on full diet, generally within three days of the operation, with the result that the bowels usually act normally after three or four days. Sometimes the action is delayed without any harm. Occasionally it is necessary to run olive oil into the rectum through a soft catheter. No strong purgative or ordinary enema is given.

REFERENCE.
[1] *Selected Papers*, 1925.

THE ESSENTIAL OIL TREATMENT OF CHOLERA.

BY

ALEXANDER CANNON, M.B., CH.B.LEEDS,
CANTON.

RECENTLY Dr. Tomb introduced in the Asansol Mining Settlement, Bengal, a treatment of cholera by an essential oil mixture made up as follows:

Spt. aether.	♏ xxx
Ol. caryoph.	♏ v
Ol. cajup.	♏ v
Ol. junip.	♏ v
Acid. sulph. aromat.	♏ xv

One drachm, in half an ounce of water, to be taken every half-hour (in case of cholera); total average dose 8 drachms. One drachm, in half an ounce of water, daily, is an excellent preventive.

This mixture should be given immediately, when practicable, but it is claimed (and here it has been proved) that in 95 per cent. of cases recovery will be secured within a period of seven hours from the onset of symptoms. No special care need be paid to subsequent dieting. Vomiting, purging, and intestinal pains appear to be immediately controlled by this mixture. As little supervision is requisite, the value of the method in mass treatment of natives is obvious.

Manson-Bahr and others state that the cholera vibrio may be found in the stools for as long as forty-four days after the patient has commenced convalescence. Bacteriological examination so far shows that following the administration of Dr. Tomb's mixture the vibrio ceases to exist after a period of from six to twelve hours from the commencement of the treatment, thus apparently reducing the quarantine period from forty-four days to twelve hours. This is a matter of considerable importance from the shipping point of view, as it is not necessary to keep a ship in quarantine for more than twelve hours, since everyone on board (passengers and crew) can be treated as a potential cholera case and given a dose of the mixture every half-hour for four hours (which is sufficient to cure a case of cholera, seen within seven hours of the first symptoms, up to 95 per cent. recoveries, and practically 100 per cent. if given as soon as symptoms appear).

I have bacteriological proof that this mixture can also clear up a case of typhoid fever within twenty-four hours, which is a matter worth investigating, as this might prove an infallible mixture for those diseases where the germ is present in the intestines, etc.

The few cases of cholera we have had here had not taken the essential oil mixture once a day as a preventive. Most of these, when first seen, had marked choleraic symptoms with the typical rice-water stools, and on bacteriological examination, which in some cases was confirmed by Surgeon Commander R. Buddle, R.N., the cholera vibrio was found to be present, and in large numbers, in every case. Only one patient died, and he refused treatment until twenty-four hours after symptoms appeared, when I was called in to see him for the first time. He was in the algid state, and before an intravenous saline injection could be given he died. All other cases recovered in from seven to twenty-four hours of commencing treatment; those recovering in seven hours had immediately resorted to the treatment, and those who took longer to recover had awaited until their symptoms were so marked that treatment had to be strictly enforced. I append a few brief notes of cases.

Case 1.—A man, aged 35, had violent cramps, vomiting, and rice-water stools. On microscopic examination the cholera vibrio was found to be present. The essential oil treatment was given within two hours of the commencement of symptoms. Six hours later no vibrios were to be found.

Case 2.—A man, aged 32, had symptoms similar to those of Case 1, but no vomiting. Microscopic examination showed the presence of the cholera vibrio. He was given the essential oil treatment within five hours of the onset of symptoms. The vibrio ceased to exist after ten hours.

Case 3.—Lieutenant B., R.N., aged 26, also had symptoms similar to those of Case 1. His doctor at first treated him with opiates, but when he became worse the essential oil treatment was resorted to, and after eight doses at half-hour intervals the patient began "to feel himself again." Although both the surgeon commander and I had confirmed the diagnosis by microscope, when the patient was examined at the Naval Hospital, Hong-Kong, eleven hours later, no vibrios were found.

Case 4.—A woman, aged 26, with symptoms similar to the previous case and also marked tenderness over McBurney's point. The case was not notified to me until at least thirty hours after symptoms had appeared, and the patient was in a very weak condition and passing stools every minute or so. Essential oil treatment was immediately carried out, and within twenty-four hours the patient was convalescing.

Case 5.—A Chinese coolie, aged 48, had typical symptoms, as briefly described in Case 1; they began at 4 o'clock. Treatment by essential oils was commenced immediately, and at 9 o'clock the same evening the patient went home free from vibrios, and therefore a non-carrier.

Case 6.—This patient was a Customs officer, aged 32. His symptoms were similar to those of the other patients. Nine hours after treatment by essential oils no vibrios were to be found.

Case 7.—This patient, a commissioner, had the typical symptoms, but without any marked cramps; they commenced at 3.30 a.m. Microscopic examination showed numerous cholera vibrios to be present in the stools. Essential oil treatment was resorted to at once. At 6 a.m. the patient felt that he had taken a turn for the better; he was up the next morning by 10 o'clock. The stools were examined under the microscope and no vibrios found. At 2 p.m. the same day he resumed duty, although feeling rather weak.

Case 8.—In this patient, a nurse, the symptoms commenced with marked vomiting, then diarrhoea, which rapidly took on the appearance of rice-water stools. There were severe pains around the umbilicus, and the patient was so certain that she was dying that she did not want anyone to come near her and take risks. Essential oil treatment was given, and before sunrise the next morning she was well on the way to recovery.

This treatment could no doubt also be used in some kinds of intestinal toxaemia and in certain influenzal and rheumatic conditions. There seems to be no doubt that as a preventive and cure for cholera it is very efficient.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

TRAUMA AND SARCOMA.

THE relation of trauma and malignant disease is a question which has always been debated in surgery, and cases clearly illustrating such a connexion are of considerable interest. It is now generally recognized that an important predisposing factor to carcinoma is the presence of chronic irritation, which may be a condition of mild, oft-repeated injury, either purely mechanical—as is often the case in epithelioma following the irritation of a jagged tooth—or mechanical together with a chemical factor, as is seen in mule-spinner's cancer of the scrotum.

Sarcoma, however, is often stated to follow upon a single injury, usually of a mild degree. Coley[1] has found a history of such trauma in 225 out of 970 cases of sarcoma, and the definite statement is made that a single injury may give rise to sarcoma of the breast, such a history having been obtained in nearly 10 per cent. of cases of this condition.

Boyd[2] states that sarcoma may arise after injury to bone, but the injury must not be of such severity as to give rise to a fracture. This apparently controverts a statement by Johnson and Lawrence[3] that sarcoma may arise at the site of a fracture; in the latter case, however, it is often impossible to decide if the tumour was caused by or gave rise to the fracture. Sarcomatous change in the callus has been given as the primary cause. Cerebral tumour (? sarcoma) is said[2] to have followed a slight head injury. It is also stated[3] that sarcoma rarely develops in a pre-existing benign tumour, but may occasionally occur in neurofibromatosis and endothelioma.

[1] Keen's *Surgery*, vol. 6.
[2] Boyd's *Surgical Pathology*, p. 160.
[3] Choyce's *System of Surgery*, vol. i, p. 498.

These considerations render the following case of some interest in showing the development of sarcoma in a previously benign tumour following a definite injury.

A single woman, aged 40, a tailoress, came to me on May 11th, 1926, on account of a cystic swelling on the outer aspect of the left thigh; it resembled a sebaceous cyst. I removed it on July 25th under local anaesthesia and found that it was composed of a lobulated mass of fatty tissue; I took it to be a lipoma.

She again came to me on August 16th, and complained of the recurrence of "lumps" at the site of the soundly healed wound. There was a purplish cystic mass adherent to the skin, not sharply defined from the surrounding tissues and not adherent to the deeper structures. It measured 9 by 5 cm. Under general anaesthesia I excised the growth, removing the affected skin and going down to the muscles, which appeared to be free from any infiltration.

The specimen, which appeared to be made up of fatty tissue with two or three cystic spaces containing blood-stained fluid, was sent to Dr. H. A. Cookson, pathologist to the Royal Infirmary, who reported: "Section shows the presence of a marked sarcomatous change in a myxofibroma."

It was at this juncture that I was informed that the patient had had for "some years," at this site, a small lump which looked like a strawberry. She had noticed the gradual formation of the first cyst after a fall on December 14th, 1925, when she had bruised her left shoulder, side, and left thigh. On this occasion she had been under our care for the condition of the shoulder, but had not mentioned the injury to the thigh.

Present Condition.

The patient has had *x* rays (massive doses) applied to the site of the growth by Dr. Paige Arnold at the Royal Infirmary. The wound is now (November 11th, 1926) soundly healed except at its lower end, where there is some slight discharge, and some irritation of the surrounding skin. As yet there are no signs of recurrence, and she says that she is feeling in quite good health. She has now returned to her work.

Sunderland. H. B. L. LEVY.

HERPES ZOSTER AT FOURTEEN MONTHS.

THE following case is, I think, worthy of being placed on record.

A female child, aged 14 months, suffering from herpes zoster, was brought to the skin department of the Belfast Hospital for Sick Children on November 25th, 1926. The skin lesions were on the left leg, the nerves involved being the first, second, and third sacral. The areas affected were the sole of the foot and between the first and second toes, the posterior aspect of the middle third of the thigh, and the outer surface of the left labium majus. There was little or no disturbance in the general health of the child. The mother is healthy, and, to the best of her knowledge, the child has not come into contact with any cases of chicken-pox or "shingles."

The age of the patient is of special interest. Boix of Montevideo in 1917 recorded two cases—one in an infant 4 days old, and one in a child 4 months old.

IVAN H. MCCAW, M.B., B.Ch., B.A.O.Belf.,
Hon. Dermatologist, Belfast Hospital for Sick Children.

ACUTE YELLOW ATROPHY OF THE LIVER.

THE case here recorded seems to be of sufficient interest to merit publication.

An electrical engineer, aged 38, was admitted to St. John's Hospital, Lewisham, on March 8th, 1924, complaining of vague pain in the abdomen. He had been feeling unwell for four weeks, had been jaundiced and confined to bed for one week, and had vomited after food for three or four days. For the preceding three months he had imbibed alcohol freely.

He was deeply jaundiced and sleepy; he could be roused with difficulty, and it seemed too much of an effort for him to answer questions. He resented the approach of anyone near him, and his breath had a peculiar odour. There were no physical signs except that he resented pressure below the right costal margin. The bowels were constipated. Both urine and faeces contained bile. Temperature 97.7°, pulse 92, respirations 20. That night he became delirious and voided urine into the bed. On the following day the jaundice deepened and he became unconscious. His breathing was stertorous and his eyes were continually rolling from side to side. The area of liver dullness was diminished. Temperature 98°, pulse 108, respirations 26. He remained in this unconscious condition during the following day, and died in the evening.

A *post-mortem* examination was made and the only abnormal conditions were found in the liver and lung. The liver was shrunken and its capsule lax. It was of yellowish colour with red areas scattered throughout, especially along the anterior border. The pathologist described it as typical acute yellow atrophy of the liver. Unfortunately no microscope report could be obtained. The right lung showed an obsolete tuberculous lesion at its apex.

It was thought the condition might have been due to salvarsan or its derivatives, but there was no history of this, and at the necropsy there was no macroscopical evidence of syphilis.

I am indebted to Dr. Guy Neely for permission to publish this case, which is apparently very rare.

Swansea. T. J. EVANS, L.R.C.P.Lond.

SCIATICA: POTT'S DISEASE.

WHENEVER pains in the area of distribution of the sciatic nerve do not promptly disappear after removal of all septic teeth and septic tonsils, an *x*-ray search for tuberculous disease should promptly be made in the lower lumbar spines and lumbo-sacral and sacro-iliac joints—not omitting such an opportunity to take a radiograph of the hip.

At the moment (October 8th, 1926) I have two cases under treatment which had been diagnosed as sciatica. After considerable waste of time, radiological examination revealed in each marked lateral caries of the fifth lumbar vertebra; the Calmette test was positive. The patients were placed at absolute rest, out of doors, in a double "Liston" frame. The pains disappeared within a few weeks, and periodic radiographs demonstrate steady increase in calcification.

It is a remarkable coincidence that both patients are vigorous men about 40 years of age; both had various decayed teeth, including pus bags and socket absorption; both had led an outdoor "steady" camp life; both had served in the great war, and tuberculous disease is about the last thing that the previous existence or appearance of either would suggest. The fact, however, remains, and points the moral that it is not wise to view anything as neuralgia about face, joint, or spine unless radiological examination warrants such an assumption.

Buenos Aires. JOHN O'CONOR.

Reports of Societies.

CHANGES IN THE CLINICAL ASPECTS OF DISEASE.

AT the Medical Society of London on January 10th, Sir HUMPHRY ROLLESTON, Bart., delivered his presidential address (printed in full in this issue at pp. 87-91) on "Changes in the clinical aspects of disease." After the thanks of the society had been conveyed to him on the motion of Dr. E. M. CALLENDER, who said that while they were all aware of the changes which had taken place in disease it needed a master mind to bring them into focus as the President had done, a brief discussion took place.

Sir CHARLES BALLANCE, taking up the President's remarks with regard to small-pox, mentioned that in his own early days he was closely acquainted with Sir John Simon at St. Thomas's Hospital, and Simon once told him the interesting fact that when he was a boy there was only one criterion of beauty for an Englishwoman—she was considered fair if she had not had small-pox. The part played by vaccination in bringing about this striking change could not be over-emphasized. With regard to appendicitis, the speaker said that he was at one time clinical clerk to Dr. Charles Murchison, the greatest clinical teacher he had ever known. Under Murchison he saw many cases of peritonitis treated with mercury and antimony, and he recalled one clinical lecture given by Murchison on fatal cases in which pus was found in the neighbourhood of the caecum. He himself saw these cases not only in the ward but *post mortem*, because Murchison always took his class into the *post-mortem* room, and there he remembered distinctly Murchison pointing out ulcerations of the appendix. That must have been about 1878, yet at that time there was no suggestion of operation on the appendix. Suppurative appendicitis had indeed been described and illustrated as early as 1850. He had been interested also in what Sir Humphry Rolleston had said

about hydatid disease, and he remembered one physician of the old days at St. Thomas's who always kept in his pocket an ordinary pocket-knife, and when he got a case of swelling over the liver which he said was a hydatid cyst he used to make an incision through the skin with the pocket-knife. He also carried in his pocket a piece of copper wire, which he bent round into a hook, and this he put into the cyst to pull out the daughter cysts. The speaker also commented on the great changes which had taken place in the aspects of syphilis, and the entire disappearance, thanks to better treatment, of the horrible ulcerations formerly seen.

Sir WILLIAM HAMER rejoiced in the emphasis laid by the President on a conception which sometimes had been lost sight of—namely, that what was being dealt with in disease was not merely the germ or the human body, but the reaction between the two. So magnificent an expenditure of energy had been devoted to elucidating the wonderful subject of bacteriology that the fact had slipped out of sight that, after all, the disease was the reaction. Since his retirement he had been devoting his leisure to the study of epidemiology, and he had been interested to find that the writers of the eighteenth century were quite surprisingly clear on the point that it was this reaction which had to be considered, and even in the seventeenth century Sydenham had clearly in mind the root idea of modern immunology, that the exciting cause—that is, the germ—had to work upon the blood and humors, and that it was the reactions which accounted for the different clinical manifestations; and Sydenham's contemporary Willis was perhaps even more explicit on this subject.

Sir PERCY BASSETT-SMITH mentioned the change in character which had occurred during the last thirty years in Mediterranean fever. In the old days, when the wards were full of cases of this disease, it was characterized by acute fever, intense sweating, painful arthritis, and a good deal of neuritis. Nowadays the cases were quite different. One rarely found arthritis at all, and the type of fever generally was not so severe. In the cases described from South Africa, and in those also from Italy and the South of France, there seemed to be much more tendency to haemorrhagic complications and to slight meningeal symptoms. This change of type had perhaps coincided with a change in the infective carrier. In the Riviera the carriers now seemed to be, not goats as formerly, but sheep; in Italy and also in South Africa the carrier was now thought to be cattle. It seemed possible that the organism, by passing through certain animals which were not so likely to suffer from the disease as goats or human beings, had undergone a certain amount of change in virulence and in character, and so had produced a disease which was very different from that formerly seen.

Mr. ZACHARY COPE said that a physician or surgeon could almost be "dated" by his experience or lack of experience of certain diseases. One instance on the surgical side was the acute perforating gastric ulcers which were formerly very commonly found in chlorotic young women. Such cases were now seldom encountered—he himself had not seen one for fifteen years. Cases of glands in the neck were also seen much less commonly than formerly. One might almost date a surgeon if he was found to be familiar with ileal kinks as a disease. Occasionally the effects of treatment gave rise to new diseases, which again could be dated. One example was *x*-ray epithelioma. Presently a violet-ray epithelioma might be forthcoming, though he had not himself seen a case as yet.

Dr. H. A. DES VOEUX doubted the conclusion which the President had suggested with regard to the relationship between influenza and appendicitis. Influenza was certainly not a new disease. It was known four or five hundred years ago, and was recorded in medical literature under different names. The name "influenza" was given to it early in the eighteenth century by a London physician, his reason being that, as he said, it was a disease which flowed like a river from the king in his palace to the peasant in his cottage. Dr. Des Voeux thought that appendicitis also must be a good deal older than was generally supposed. When many of those present were young they came across a good many cases of acute peritonitis—a disease which had now died out owing, he supposed, to the prompt measures taken for the removal of dangerous appendixes and of gastric or duodenal ulcers. Appendicitis in milder forms was probably fairly common long before it was diagnosed as such. Patients came with acute painful indigestion, or sometimes with recurrent attacks of bilious vomiting and abdominal pain. These, he thought, were cases due to inflammation of the appendix, and they were strikingly common thirty or thirty-five years ago.

Dr. F. PARKES WEBER said that one of the difficulties in any discussion of this kind was the change of name of diseases. This applied, of course, to encephalitis lethargica, and to many other conditions. What was not usually noticed was that the same name was used at different periods for totally different diseases. Some time before the war a disease, characterized by redness and pain in the extremities, was described as epidemic—not very common, but still not rare—in Australia, and Dr. H. Smith gave it the unfortunate name of erythroderma. People immediately began to cast about for a name which would describe this disease in children, and erythromelalgia was hit upon, which was correctly descriptive, but unfortunately had been used previously by Weir Mitchell for the malady which he first described in 1872. There was another name, so to speak, on the market—"acrodynia"—meaning pain in the extremities, and this name was suggested and had apparently gained the day, for he noticed that it was accepted in Abt's *Textbook of Children's Diseases* in America, and also in the French medical journals. But this name had been used for an extraordinary epidemic disease which swept over Europe, especially France, a hundred years ago, and from which an enormous mass of people, chiefly old people, suffered. He could not think that this disease in children for which the name "acrodynia" seemed likely to come into general use could possibly be the same as the acrodynia which created such an impression in the early part of the last century.

ABDOMINAL TUBERCULOSIS.

AT a meeting of the Section of Surgery of the Royal Society of Medicine on January 5th, the President, Mr. V. WARREN LOW, in the chair, a discussion on abdominal tubercle was opened by Mr. H. W. CARSON.

Mr. Carson said that abdominal tubercle, as seen by the surgeon, was often very hard to diagnose, and the conditions found at operation might also lead to difficulties. Cases of abdominal tubercle in which he had operated during the last eight years comprised tuberculous peritonitis, enteritis, appendicitis (in one case), and ileo-caecal tuberculosis, while the majority of patients suffered from tuberculous mesenteric glands. Dealing first with tuberculous peritonitis, Mr. Carson described three varieties—ascitic, adhesive, and caseous—the latter being really a stage of mesenteric gland tuberculosis. The ascitic form, he said, might occur as an acute manifestation, and the adhesive form represented a further repair stage of the ascitic type. The scope of operative treatment was well illustrated in the case of the ascitic type, for these cases did well after simple laparotomy. The old theory to account for this ascribed the cure to admission of air and light, while a more recent view explained it on the grounds of an outpouring of a fluid rich in antibodies into the peritoneal cavity. The adhesive cases, on the other hand, did not benefit by laparotomy, which, indeed, was often dangerous, and did well if left alone, operation being reserved for cases with obstruction. Mr. Carson stated that tuberculous enteritis was a disease of middle age, and probably only occurred in cases where infected sputum was swallowed. He described some cases of ileo-caecal tuberculosis, all of the hyperplastic type, which he had treated by resection; no cases of the entero-peritoneal type had been met with in the period under review. The case of tuberculous appendicitis had been diagnosed by pathological examination after removal. Mr. Carson referred to a paper on tuberculosis

of the mesenteric glands read before the Medical Society of London in 1918. He said his views had not changed since that time; he still held that rise of temperature did not occur in uncomplicated cases of mesenteric tuberculous glands, and, dealing more particularly with a recent series of cases, he described the principal symptoms. Pain, especially on running about, was common, and vomiting might occur. The other causes of colicky pains of this nature in a child which had to be considered were colic from dietetic causes, a relapsing appendix, worms, and ureteric calculus. The complications which might arise from tuberculous mesenteric glands included intussusception in the non-caseating type and obstruction in the caseating type. In one case haematemesis had occurred, and in another melaena had been present with other symptoms of duodenal ulcer. In caseating glands complicated operations were sometimes necessary, especially if obstruction was present. Three patients in whom resection had to be performed had died out of 19 non-caseating cases which had required operation, 10 patients were quite well, but too many cases appeared to be not entirely satisfactory as regards health after operation. It had to be borne in mind, however, that cases of mesenteric tuberculous glands were serious. In summing up, Mr. Carson stated that he was seeing fewer cases of this disease now than in past years, and he believed that if the milk supply could be satisfactorily controlled the number could be still further reduced.

Mr. V. ZACHARY COPE said that in dealing with abdominal tubercle he proposed to exclude renal tuberculosis and psoas abscess and deal with the three main forms affecting the intestine, the peritoneum, and the glands. Tuberculous glands might be small and multiple, and might form a mass in the ileo-caecal region and simulate appendicitis. They also occurred in large fleshy varieties, forming small tumours, and secondary changes comprised caseation and calcification. Tuberculosis of the peritoneum occurred in an acute form sometimes simulating acute abdominal disease or as a miliary subacute form which might occur without any symptoms. Mr. Cope then proceeded to correlate symptoms with pathological conditions, pointing out that as a general rule deterioration of health was marked in all these cases. The small glands gave rise to colicky pains, while the large ones sometimes presented themselves as abdominal tumours. Calcified glands were generally diagnosed by *x*-ray examination. Of the intestinal varieties, hypertrophic caecal tuberculosis gave rise to the formation of a tumour, while intestinal obstruction might occur in this and other forms of intestinal tuberculosis. Tuberculous ulcers generally resulted in diarrhoea, while, if they perforated, faecal fistula might follow in some cases, acute peritonitis being set up in other instances. Of the peritoneal forms, acute tuberculosis presented all the appearances of acute peritonitis, while the chronic miliary form gave rise to ascites. Dealing finally with indications for surgical intervention Mr. Cope said that this consisted of letting out ascitic fluid, remedying obstruction, dealing with perforation, opening abscesses, and dealing with fleshy glands if these were causing symptoms. He added that it was difficult to know when to touch these glandular cases.

Dr. M. CASSIDY (continuing the discussion for the Section of Medicine) agreed that tuberculous enteritis was becoming less common, due, he believed, to the general decrease in all cases of tuberculosis and to the segregation of tuberculosis cases in special hospitals and departments. He then dealt with a series of 267 cases of tuberculous peritonitis treated at St. Thomas's Hospital during a recent ten years period. He thought there was no sharp line between the ascitic and the adhesive varieties, but he disagreed with Mr. Carson as to the latter being only a stage of repair. The prognosis in uncomplicated cases of tuberculous peritonitis appeared to be uniformly good, although it might run a long course. The symptomatology was rather variable. The disease might be latent and only discovered by radiologist or surgeon. Pain was very variable and might be absent, severe, or continuous. It was more common in adults with the plastic type. Diarrhoea and constipation might both occur. The diagnosis was often difficult, especially in cases with an acute onset within the first twenty-four hours of an attack. In adults more chronic cases were confused with abdominal carcinoma. Pyrexia was not conclusive as a sign, but very important was a peculiar rubber-like resistance of the abdomen wrongly described as doughy. Chronic non-tuberculous peritonitis might cause difficulty, and cirrhosis of the liver sometimes led to error. Dr. Cassidy remarked that the diagnosis between an ovarian cyst and tuberculous peritonitis was a traditional difficulty, but he had only once encountered it. Treatment of tuberculous peritonitis consisted in simple laparotomy followed by treatment on sanatorium lines. The speaker next dealt with tuberculous entero-colitis, basing his remarks on recent work by Brown and Sampson. In one form intestinal tuberculosis was associated with pain and diarrhoea, and was usually fatal. The other variety was hyperplastic ileo-caecal tuberculosis. Diagnosis was helped greatly by radiological evidence, particularly Stierlin's "filling defect."

The PRESIDENT said that even if "caseous peritonitis" occurred with abscesses bursting at the umbilicus, the mortality was surprisingly low. The ascitic variety of tuberculous peritonitis had an excellent prognosis, and diagnosis was not difficult even in the acute forms, since children seemed so well with their apparently serious condition. There was seldom any refilling of the abdomen after operation in these cases, and he believed that Sir Almroth Wright was responsible for the view that, following operation, a fluid of high bactericidal power exuded into the peritoneal cavity. The speaker thought that adhesive peritonitis was not a stage in repair, since cases began as this type, which was often very malignant and frequently fatal. He thought that the traditional difficulty between ascites and ovarian cyst dated from the time of Spencer Wells. He did not believe that tuberculous mesenteric glands were such a serious condition, since these glands were so commonly involved in children; the symptoms ascribed to the presence of these glands might be really due to complications. Attacks of sudden severe pain in such cases usually had a mechanical cause. He generally preferred to leave such glands alone at operation.

Mr. CECIL ROWNTREE stated that he had been converted to Mr. Carson's views on mesenteric gland tuberculosis, and there was experimental work to support them. Tuberculous mesenteric glands should be regarded as a separate category, while abdominal tubercle in general could be looked upon as complications of these glands. He thought that all these patients showed pyrexia during the early stage of invasion, following which they often appeared to get well, but were never robust. Surgeons then met these cases later on because of attacks of abdominal pain, which might be spontaneous or brought on by exercise. Such patients were mostly operated upon as cases of appendicitis, and they generally got better. It was suggested that the appendix was the source of infection in these cases. If glands gave rise to symptoms he thought they should be removed by dissection.

Dr. J. A. RYLE discussed the early diagnosis of mesenteric gland tuberculosis when this still gave rise to no physical signs and no severe pain, in the stage when the patient ought to get well without surgery. Such early stages might be recognized by loss of energy in a child, accompanied by evening pyrexia of 99° or 100°. The temperature must be carefully taken, and preferably per rectum. Stomach-ache of a mild degree also occurred, which was characteristically vaguely localized in both iliac fossae. Failure to increase in weight and height was also common, and a mild, chronic diarrhoea, with pale, unformed stools, was a frequent symptom. Food was not absorbed owing to obstruction to the lacteals. In old-standing cases in adults anaemia was an important sign which had often to be looked for carefully.

Mr. MORTIMER WOOLF inquired about the necessity for resection in ileo-caecal tuberculosis. He also asked if all the glands found were necessarily tuberculous, since with an inflamed appendix, for example, enlarged glands of an inflammatory type might be expected.

Mr. CARSON, in reply, stated that he had found so many cases with symptoms, but with only enlarged glands to

account for them, that it seemed that such symptoms were not those of complications. He thought that appendicular infection acted by lowering the resistance of the glands draining that region, and he agreed that the glands seen were probably not all tuberculous.

TRYPANOSOMIASIS IN MAN AND ANIMALS.

AT a joint meeting of the Sections of Comparative Medicine and Tropical Diseases and Parasitology of the Royal Society of Medicine on January 5th, with Sir D'ARCY POWER in the chair, a special discussion on trypanosomiasis in man and animals was opened by Dr. W. H. ANDREWS.

Dr. Andrews drew attention to the importance of the subject to medical practitioners and veterinary surgeons. The classification of the various species of trypanosomes found in man and animals was difficult, but he was pleased to see that it was becoming much simplified in the more recent textbooks. It was dangerous to define new species on the basis of biological differences, and virulence and cross-immunity tests were not reliable for this purpose. The effects of artificial transmission tended to make a strain monomorphic and in many cases to increase its virulence. This mechanical transmission, as distinct from surgical transmission, should be the subject of field experiments. In Zululand, where he personally had had most experience, several species of trypanosomes occurred. *T. brucei* had not been found since its discovery; it was a monomorphic form, and the species there were polymorphic. In that country were also found *T. vivax* and *T. congolense*, the latter being the main form in cattle. The virulence of different strains was affected by many factors, such as the species of host, the breed, the age, and so on; and Dr. Andrews thought that the effect of the mammalian host on the parasite had not been sufficiently studied. A factor of importance in prophylaxis was the domestic animals which might often form a reservoir which could not be neglected. He personally was in favour of the control of wild game, as the effects of the rinderpest outbreaks had caused a marked diminution of the disease. The results of chemiotherapy were conflicting and there seemed to be two aims—namely, attempting to sterilize the animal's blood, or, alternatively, to check the first onset and allow the body to fight the parasite itself and so become more or less immune; this advantage was absent in the first method.

Dr. P. MANSON-BAHR confined his remarks to a discussion of the treatment of the disease in man. He said that there were two features to be observed when any new drug was introduced into tropical medicine. First, its action on artificially infected animals did not necessarily correspond with its effect on man; and, secondly, there was great variety in the reactions of individual patients to the same drug, man responding in a much less mechanical manner than did the ordinary laboratory animal. Dr. Manson-Bahr then discussed the actions of two recently introduced drugs. "Germanin," or "Bayer 205," or "Fourneau 309," as it was variously called, was a white flocculent powder of aniline origin which might be administered in various ways, but was generally given intravenously. A single injection caused disappearance of all the parasites from the blood stream in about eighteen hours, although there was a remarkable proliferation just immediately before their disappearance. The blood appeared to be sterilized almost immediately, but there was evidence that a Bayer 205-fast strain might be evolved, and relapses sometimes occurred after 5 grams had been given; twice this amount was generally allowed for a complete cure. This drug was a definite kidney irritant, and irritation might persist for several weeks after treatment had ceased. It did not affect the meningeal reaction, and therefore patients in the second stage of the disease were not permanently cured; they almost invariably relapsed. Intrathecal injections were dangerous and death might result. Dr. Manson-Bahr's own impression was that Bayer 205 was the drug of election in early haemic infections, especially in those instances in which the parasites had become "fast" to arsenic or antimony, and he quoted two of his own cases to support this statement. The second drug was the arsenical compound tryparsamide, which also was usually given intravenously. There was convincing evidence that the drug exerted a profound influence on the meningeal reaction in *T. gambiense* cases, and that it was the drug of election in the second and third stages of the disease, in which Bayer 205 had no effect; he quoted two cases to illustrate this point. In conclusion he expressed great hopes for the future treatment of the disease; at present the most effective treatment was a combination of the two drugs, or alternating treatment to avoid "fastness," since each seemed to be the antithesis of the other. Natives would not remain in hospital for prolonged treatment, and it was only by the use of some such rapid method that a large proportion of them could be benefited.

Dr. J. GORDON THOMSON drew attention to some aspects in the biology of the trypanosomes, and asked whether the polymorphic strains in man were the same as those in animals. He found that they tended to become monomorphic through long mechanical transmission. Thus in rats which had been injected with *T. brucei*, *rhodesiense*, or *gambiense* the organism became monomorphic and resembled *T. evansi* or *equiperdum*. Sudden changes of hosts tended to transform these monomorphic forms back to polymorphic, and in rats arsenical drugs might have the same effect. He had found that *T. gambiense* was often very difficult to inoculate into rats; sometimes six months would elapse before the parasites would be found in the blood, but subinoculations tended to enhance the virulence until it would become fixed for that animal, although sometimes the virulence decreased. He found that, although tryparsamide appeared to cure the host, the organisms could still be found in the cerebro-spinal fluid; the host had become tolerant to strains otherwise lethal.

Dr. NEAME exhibited the eye of a dog with a keratitis due to trypanosomes. It most closely resembled the keratitis seen in dogs with distemper and the interstitial keratitis of syphilis in man.

Colonel F. HARVEY stated that in restudying some of Bruce's original slides he found that *T. congolense*, *vivax*, and *brucei* were present, and that the latter was polymorphic. Now the strains of *T. brucei* at home were monomorphic, and this had been found only once by him in a dog in Nyasaland. With difficulty flies had been infected with it, and, contrary to expectation, the form which resulted from the cyclical infection was still monomorphic. He suggested that this was the form originally sent home by Bruce. If the polymorphic variety had been sent home in a dog, the animal would have died long before reaching England, as the polymorphic *brucei* caused a very acute disease in dogs and killed them in about ten days. Another species, *T. simiae*, caused a very acute disease in monkeys and pigs, but a chronic one in goats. If, however, it was subinoculated from goats to monkeys, the disease produced was now chronic, although cyclical transmission through the *Glossina* was acute.

ASTHMA IN CHILDREN.

AT a meeting of the Brighton and Sussex Medico-Chirurgical Society on January 6th, Dr. ROBERT HUTCHISON (London) read a paper on asthma in childhood.

Dr. Hutchison said that the disease at this period of life might assume one of several forms: (1) true spasmodic asthma which was chiefly met with in later childhood; (2) the hay-fever type often diagnosed as a simple "cold"; (3) bronchial asthma—namely, bronchitis with a spasmodic element; (4) the bronchitic type. The last was peculiar to children, being chiefly met with during infancy, and its asthmatic nature was often overlooked. It was to be distinguished from ordinary bronchitis by its sudden onset and subsidence, by the fact that dyspnoea preceded the appearance of physical signs, by the comparative absence of fever, and by the presence of eosinophilia. So-called thymic asthma, or the para-asthma of some American writers, must be distinguished from ordinary asthma. The asthmatic paroxysm might be brought about either through the respiratory centre or by direct action on the bronchi. The respiratory centre might be acted upon psychologically, as by fright, excitement, or auto-suggestion; reflexly, from

the nasopharynx and stomach; and by the blood. The substance in the blood which might act either upon the respiratory centre or directly upon the air passages was a foreign protein to which the patient was hypersensitive. Hypersensitiveness might be either inborn or acquired, and it might vary from time to time. Such sensitiveness to food proteins was usually inborn, that to inhaled substances acquired. About 50 per cent. of all asthmatic children showed hypersensitiveness as demonstrated by skin tests, but in only a minority of these could the specific cause of the asthma be determined. The noxious protein might be ingested in the form of some food; inhaled as pollen or dust; or bacterial, from a chronic focus of infection. The methods of detecting the different forms of hypersensitiveness were then described. Passing to the treatment of the asthmatic tendency, it was pointed out that success lay in recognizing that asthma was not a disease of the respiratory system only. It was important also to break the "habit" of asthma. The general management of the child and the effect of climate and diet were then discussed. Great benefit was often obtained from the prolonged use of a mixture of potassium iodide, arsenic, and belladonna or stramonium. Sedatives such as chloral helped to prevent threatened attacks. Operations on the nose and throat and the use of vaccines were then considered. In the hypersensitive cases general desensitization of the patient was the ideal, but was difficult to effect; various methods of attempting it were described. As regards the prognosis of asthma in childhood, Dr. Hutchison's experience had on the whole been favourable. In a large proportion of cases the tendency appeared to be outgrown.

RESUSCITATION AFTER SYSTEMIC DEATH.

AT a meeting of the London Association of the Medical Women's Federation on December 14th, 1926, the President, Miss ELIZABETH BOLTON, in the chair, Dr. HARRINGTON SAINSBURY read a paper on the problem of resuscitation after systemic death.

Dr. Sainsbury said that systemic death, while putting an end to the corporate life of the body, viewed as a collection of associated organs and tissues, did not terminate somatic life—namely, the life of the body viewed as a collection of dissociated organs and tissues. At the moment of systemic death these organs and tissues retained more or less individual life and had their several rates of dying, though the tenure of life was not of long duration even for the most hardy. Since the blood served as a carrier of elements indispensable to the tissues, its coagulation point was a crucial factor in the determination of the possibility of resuscitation. While the blood remained fluid systemic life might be regarded as capable of resuscitation, given the persistence of a sufficiency of somatic life in the tissues generally and in the heart specially. As a practical problem the question of resuscitation would scarcely arise in the case of death at the natural term of life; here the vital powers had for a long while been manifestly ebbing, in spite of the use of such stimulants as diet and medicinal measures. Neither would it arise in the case of long drawn out and exhausting diseases, such as tuberculosis and cancer, where all the evidence indicated that there could only be a temporary rally. The likelihood, however, of a recovery of the powers of the mind and body, which, though brief, might yet suffice to permit of some important act, had to be considered, but such cases would be rare. On the other hand, the problem became eminently practical in proportion as it appeared that the inherent powers of the tissues, severally, were unexhausted and that the systemic death present was rather of the nature of a suspended animation which had arisen more or less abruptly in the heart or the lungs. In such cases, the somatic vitalities being still adequate, there was no reason why life should not proceed to its normal term if the heart and the respiratory apparatus could be restarted. At the threshold of life this problem arose in the case of the stillborn infant, in whom the indications pointed either to an arrested heart or unstarted breathing; in the average course of life this same problem recurred repeatedly as the result of accident, acute disease, during an operation, or even during the administration of an anaesthetic before the operation had begun. Dr. Sainsbury pointed out that the great disparity between the forces engaged in the respiratory and in the circulatory functions made resuscitation of the latter system a much harder task. For though the first breaths taken after birth had to overcome a very considerable inertia of the respiratory apparatus, respiration once established, the muscular effort required in normal breathing was no more than that needed to move the volume of tidal air in and out of the chest. In the absence of obstruction to the air passages, restarting of arrested respiratory motion was comparable to the slight touch which started the pendulum of a wound-up clock. On the other hand, when the circulation of the blood had failed a force had to be supplied to meet a great resistance—namely, a pressure corresponding in man to approximately 150 mm. of mercury in the aorta. Fortunately it was not necessary that the full momentum of the circulation should be generated all at once. The elasticity of the arterial system and the mechanism of the aortic valve permitted the summation of small efforts and gave the necessary time for recovery. Dr. Sainsbury said that the period during which the blood remained fluid and the heart muscle retained its contractility could not be given precisely in minutes, but must vary with the individual; in practice the longest recorded time between apparent systemic death and resuscitation would stand as a working precedent. Certain cardiologists had doubted the susceptibility of the heart to direct stimulation, but in his opinion this attitude of scepticism ran counter to most definite evidence. As to the most powerful means of revival, Dr. Carl Bodon of Budapest had collected from the literature the records of ninety cases in which the various recognized stimulants had been tried, and from the study of the results placed adrenaline first. Dr. Sainsbury gave details of the method whereby 1 c.cm. of a 1 in 1,000 solution of this drug could be injected into the cavity of the right ventricle, this dose being suitable for a middle-aged man. An alternative reliable method of stimulation was cardiac massage. Dr. Sainsbury held that the use of adrenaline should come first, on the following grounds. (1) The simplicity of the procedure and its rapid applicability, in these cases the sooner the stimulants acted the better; (2) when effective, the response would appear to be more prompt; (3) the comparatively slight risk involved; (4) the general disturbance, a negligible quantity. Dr. Sainsbury concluded his address with a discussion on the ethics of resuscitation, and asked if it was always right for a doctor to rekindle life in a patient who might not be grateful for his recall. His duty was to cure, or, failing this, to prolong life, upon terms; apart from this, he must try to make life more endurable; but was it his duty to thrust life upon an unwilling recipient? Medicine existed to relieve, not to inflict, burdens. These objections would not arise in the case of stillbirths, where the duty to suscitate (not resuscitate) was unquestionable, and in the event of sudden, unanticipated, unprepared-for death the case for resuscitation must be overwhelmingly strong. Therefore, in every hospital, in every nursing home, and in the emergency equipment of every medical practitioner, the apparatus for intracardiac injection should be kept in readiness. Adrenaline should not be kept reserved until life had departed, but in every case in which the heart was ceasing to respond to hypodermic or intravenous injections, intracardiac injections should be tried in order to forestall death if possible.

Lady BRISCOE, from her work on experimental animals, endorsed what Dr. Sainsbury had said about the ease of restarting respiratory movement and the difficulty of restarting the heart. She had never found cardiac massage of much value. In cats accidentally killed from an overdose of chloroform she had noticed that the diaphragm was not excitable after death, though other muscles remained excitable. She thought that deaths from chloroform might possibly be due to direct poisoning of the respiratory muscles.

Dr. LETITIA FAIRFIELD suggested that it was dangerous to speculate about the ethics of resuscitation; a newly born infant might be resuscitated to a life of many troubles, yet no one would question the doctor's duty.

Reviews.

LAW AND TRADITION OF MEDICAL PRACTICE.

MEDICAL students and practitioners cannot complain that they are left in ignorance of the legal relations of the duties and responsibilities involved in the practice of medicine. Teachers have lectured and authors have written freely on this topic. But the exposition has been presented mainly, if not entirely, from the medical platform, and it is from this source, we fancy, that instruction has reached the student of law as well as the student of medicine. A not unwelcome departure from precedent is to find the subject discussed as the lawyers see it. Hence we are strongly disposed to receive with gratitude Messrs. SANDERSON and RAYNER's book entitled *An Introduction to the Law and Tradition of Medical Practice*.[1] That the measure of our gratitude is modified on perusal of the volume we admit. None the less there are advantages in listening to our legal instructors, even though on individual points we believe them to be in error. A learned judge recently proposed that lawyers should lecture to doctors and doctors to lawyers; perhaps to ensure adequate instruction—for the lecturer.

Quite naturally our legal authors warn us that it is incumbent on every citizen to know the law; that ignorance of the law is no effective reply to a charge of unlawful conduct; that, lawyers excepted, members of the medical profession have to know more law than any other class of the community; and that beyond these general claims some fifty special statutes demand our particular attention. The burden is a formidable one, and Messrs. Sanderson and Rayner attempt to lighten it, not by reciting the provisions of individual statutes, but by an exposition of the purposes to which the law is directed and by an application of legal principles to existing circumstances and to actual facts. Medical practitioners are not untrained in their legal obligations, but they know these for the most part as empirical demands; and for the rough practical claims of life this knowledge is not insufficient. The present volume rests on appeal rather than on command. The provisions of the law are argued as matters of principle and as historical developments, and the enterprise makes some very readable and highly interesting pages. To this recognition of the merits of the book we must add an entirely grateful word in appreciation of the enlightened and generous interpretation which the authors bring to the motives and standards of the medical profession. In this respect we could not desire more considerate and understanding judges.

When, however, we proceed to test the book in detail the result is by no means wholly satisfactory, and we are the more bound to notice certain defects seeing that the present volume is presented as a mere preliminary sketch or summary, and is to be followed by a larger work intended to include a full discussion of the rights and duties of medical practitioners. If errors exist it were well to try to check them before they are placed in a more impressive setting. We will quote some examples. On p. 30 we are told that medical men "must not employ unqualified dispensers or chemists"; on p. 22 the Central Midwives Board is quoted as one of the authorities responsible for the education and discipline of the medical profession; p. 26 says that "it is considered advertisement to write signed articles in lay papers," and that the General Medical Council makes exception in this respect "in cases of eminent members of the profession"; in a footnote to p. 44 a list of "defence associations" includes two organizations that do not undertake this function; and when discussing the responsibilities of medical consultation, p. 23 alleges that it is "contrary to etiquette" to inform the patient that there is disagreement when this exists. We could extend this list, but the instances quoted are sufficient to show that the book, though animated by a sincere desire to understand the medical point of view, must suffer a critical revision before it can be trusted as an authority on medical tradition and practice.

Nor are the authors wholly successful in dealing with such delicate questions as unqualified practice and the medical attitude towards the relations between insanity and crime and between professional secrecy and the witness-box, though in discussing the last mentioned the motives directing the medical claim receive a degree of recognition not frequent in the legal forum.

As might be expected from their legal training the authors have considerable capacity for lucid statement, but what, we wonder, is the exact meaning of the sentence "Where an unqualified man establishes for himself such a reputation as to build up a practice, he is not unreasonably interfered with by law"? And must we accept the implication that "reputation" and "practice" attached to an unqualified person give him a status in the eye of the law different from that credited to another unqualified person who cannot boast these achievements?

In the preface "public health" and "forensic medicine" are excluded from consideration. Accept this restriction, and it yet remains strange that a book professing the present title should be free from all definition of the duties falling upon doctors under the laws relating to lunacy, notification of infectious diseases, notification of births, cremation, the status of the *Pharmacopoeia*, and the use of "dangerous drugs." Guidance on these points is much more needed by practitioners than is advice on book-keeping and the issuing of accounts, and to get such guidance we would willingly have sacrificed even the learned and interesting discussion on the validity of contracts and the definition of torts.

Academically it may be an open question whether lawyers or doctors are the better equipped to write books on the legal responsibilities of medical practice. To judge from our bookshelves the doctors hold the field, and the present volume is hardly likely to disturb their peaceable possession.

We repeat that the book is an engaging one. It has a sincere motive and is eminently readable. Where it presents legal propositions we must respect its authority, though even here we are not quite free from doubts. But on a number of points of medical tradition and practice it is not complete and is not well informed, and these defects seriously qualify its value.

[1] *An Introduction to the Law and Tradition of Medical Practice.* By William Sanderson, M.A., LL.B. of the Inner Temple, and E. B. A. Rayner, B.A., LL.B. of Gray's Inn, Barristers-at-Law. London: H. K. Lewis and Co., Ltd. 1926. (Roy. 8vo, pp. xiv + 76. 7s. 6d. net.)

FINLAYSON'S CLINICAL MANUAL.

WE welcome the fourth edition of the *Clinical Manual for the Study of Medical Cases*,[2] originally written by the late Dr. James Finlayson of Glasgow, who died in 1906, and so no doubt will many medical men who, now approaching the age when retirement is not far distant, were brought up on its predecessors. The last edition was published thirty-five years ago (reviewed in the JOURNAL, 1891, ii, 1153), and the present work, edited by Professors C. H. BROWNING, E. P. CATHCART, and LEONARD FINDLAY, has of necessity been revised throughout, and in places almost entirely rewritten, by twenty men closely associated with Glasgow at the present time or, in the case of Professor J. Shaw Dunn of Manchester, Dr. Maitland Ramsay and Professor Adam Patrick of St. Andrews, in the recent past. There is, however, one exception to the thorough revision—namely, in the late Sir William Gairdner's classical article on the physiognomy of disease, to which the only, at any rate only obvious, addition is a page on basal metabolism. Otherwise the substance of the work has now been so greatly changed that the editors might well have brought out a manual of this kind under their own names, especially after an interval so long as to be perhaps unique among current medical textbooks, had they not dutifully been anxious to perpetuate the essentially clinical character so distinctive of Dr. Finlayson's *Manual*, and to confine the description of tests and methods to those which can be carried out in the wards or in the attached clinical laboratories.

[2] *Finlayson's Clinical Manual for the Study of Medical Cases.* Fourth edition. Edited by Carl H. Browning, M.D., E. P. Cathcart, M.D., F.R.S., and Leonard Findlay, M.D., D.Sc.; revised and augmented throughout by various contributors. London: G. Bell and Sons, Ltd. 1926. (Post 8vo, pp. xvi + 815; 4 plates (3 coloured), 143 figures. 18s.)

This is not a manual of laboratory diagnosis, but a guide to the worker while in the wards, and at the present time, when much in the investigation of clinical cases may be delegated to whole-time workers in a somewhat distant laboratory, this distinction is not without its value as an example to ambitious writers of similarly entitled works as to what the clinical clerk and student really want. As the editors rightly point out in their brief preface, there is a real danger that the present multiplicity of chemical, bacteriological, and serological tests may induce the student to rely on them so much that ordinary physical examination may be neglected and become a lost art; as two out of the three editors are laboratory workers, this protest must be reckoned unbiased and therefore of all the greater weight. The methods recommended to be used have been chosen with care and there is no reason to fear that they have been unduly curtailed; there are illustrations and explanations of phlebograms and electro-cardiograms, descriptions of test meals and the examination of the faeces, and an account of the method of performing Hijmans van den Bergh's test. The significance of the Wassermann reaction, but not the method of carrying out the test itself, is given; whereas the methods of performing the Schick and Dick tests are mentioned. The twenty-one chapters in this new edition retain, embodied in present-day knowledge, the practical nature and philosophic spirit characteristic of Dr. Finlayson's original volume.

The only entirely new article is that on disease of the glands of internal secretion by Professor E. P. Cathcart, who gives a broad sketch of the various changes which may suggest endocrine disorder; he points out that operative removal of an endocrine gland being sudden differs from disease, which, being slow in its progress, allows the body time to make a whole series of protective measures. He pays a warm tribute to the Toronto physiologists in the discovery and production of insulin. The article had evidently gone to press before Dr. C. R. Harington's recent work on thyroxine appeared. The chapter on affections of the blood and lymphoid tissues has been practically rewritten by Professor Carl Browning and Dr. Ernest M. Dunlop, who have added a successful coloured plate of the blood cells. The section on the eye, which Dr. Finlayson made rather a feature in his original editions, has been wisely entrusted to Dr. A. Maitland Ramsay, now Director of the St. Andrews (James Mackenzie) Institute for Clinical Research, and those on the ear and the upper respiratory and alimentary tracts are safe in the hands of Dr. Albert A. Gray and Dr. A. Brown Kelly respectively.

In conclusion, it may be said that this new edition admirably justifies its aims and should prove as popular as its ancestors.

THE STRUCTURE OF COLLOIDS.

PROFESSOR WOLFGANG PAULI has published in a small volume two lectures he delivered on proteins and colloids,[3] the one to an assembly of medical men and the other to chemical students. The author is one of the leading authorities on colloidal chemistry, and states very clearly his belief that "all colloidal and protein reactions can be accounted for by electrostatic exchanges, provided that regard is paid to the relation between chemical configuration and the spatial arrangements and intensities of electric fields."

This view is based on the modern theories regarding the structure of molecules, and consists essentially in an extension of the laws, which are recognized by physical chemists to govern the hydration of inorganic salts, to account for the behaviour of substances when aggregated in particles of colloidal dimensions. This conception leads the author to disagree with many of the theories of Loeb, who sought to explain the behaviour of proteins chiefly by the laws governing the Donnan membrane equilibrium. The subject is of great interest to all workers in the biological sciences, for protoplasm is a colloidal substance, and there is no chance of understanding anything of the fundamental laws governing the behaviour of living matter until the laws of colloidal chemistry are placed on a secure basis. The questions that arise are of exceptional difficulty, but Professor Pauli has succeeded in enunciating a few basic conceptions in terms as simple as the subject permits.

[3] *Eiweisskörper und Kolloide.* Von Prof. Dr. Wolfgang Pauli. Wien: J. Springer. 1926. (Med. 8vo, pp. 32; 20 figures. 4s.)

THOMSON AND MILES'S "SURGERY."

THREE volumes of the seventh edition of THOMSON and MILES'S *Manual of Surgery*[4] have been issued. Their appearance, as Mr. Miles says, has been delayed by the untimely death of Professor Alexis Thomson. The book has long occupied a unique position in English surgical literature. In its style and teaching it is characteristic of the sound and thorough work of the Edinburgh school. It is perhaps a book rather for aspirants to the Fellowship than for those who seek to pass qualifying examinations; but to the latter it is a valuable book of reference, for it can be said that there is very little of importance in surgery—academic, theoretical, or practical—which cannot be found in its pages. The effort at compression has perhaps been carried a little far, and the southern student might wish for a more detailed classification.

The work is clearly and concisely written, the most modern views are expounded, and the illustrations are abundant, though the publishers might perhaps have taken greater pains to bring out more clearly some of the *x*-ray photographs. Each volume is of convenient size and has its own index. The first volume, which deals with general surgery, contains chapters devoted to general bacteriology, inflammation, suppuration, ulceration, gangrene, wounds, and the repair of tissues; tubercle, syphilis, and tumours each have a chapter, and next come others on injuries, on the blood vessels, on the lymphatic system, and on the nerves and the skin, on tendons and muscles, on bursae, and on the diseases of bone and joints. The second volume contains ten chapters on the extremities, in which the various fractures, dislocations, and deformities are described and their treatment discussed. Eight chapters follow—on the scalp, skull and brain, and on the spinal cord. The third volume deals with the thorax and abdomen, and includes a discussion of the clinical aspects of abdominal and pelvic conditions peculiar to women. In this volume the information is particularly concise. On the subject of enteroptosis the Edinburgh school appears to deprecate the majority of slinging or fixation operations of the bowel, some of which have survived a rather extensive trial. The spleen usually receives scant attention in surgical textbooks, but here a word on splenectomy for purpura haemorrhagica might have been included. The treatment of haemorrhoids by injection of carbolic acid is not mentioned. It is curious that reproductions of cholecystograms seem so far not to have found their way into textbooks.

We can thoroughly recommend these volumes as forming a valuable work of reference in surgery, and congratulate the author on the successful way in which he has prepared the seventh edition.

CAVERNOUS SINUS THROMBOSIS.

DR. WELLS P. EAGLETON of Newark, New Jersey, has presented, in a volume entitled *Cavernous Sinus Thrombophlebitis and Allied Septic and Traumatic Lesions of the Basal Venous Sinuses*,[5] a study of twenty-five cases of cavernous sinus thrombophlebitis he has himself observed. Naturally allied conditions such as thrombophlebitis of the jugular bulb must come into the discussion, but the main thesis is indicated in the title, and the experience of the author, if not unique, is certainly unusually large. Dr. Eagleton is already well known from his book on brain abscess and other publications relating to the intracranial complications of middle-ear and nasal infections, so that this new work will at once command attention and respect.

The twenty-five cases are very elaborately reported with full commentaries, and there is in fact so much detail that

[4] *Manual of Surgery.* By the late Alexis Thomson, M.D., F.R.C.S.Ed. and Eng., and Alexander Miles, M.D., LL.D., F.R.C.S.Ed. Vol. I, General Surgery; Vol. II, Extremities—Head—Neck; Vol. III, Thorax—Abdomen. Seventh edition. Oxford Medical Publications. London: Milford, Oxford University Press. 1926. (Cr. 8vo: Vol. I, pp. xiv + 565, 169 figures; Vol. II, pp. xvi + 663, 297 figures; Vol. III, pp. xii + 567, 169 figures. 12s. 6d. net each volume.)

[5] *Cavernous Sinus Thrombophlebitis and Allied Septic and Traumatic Lesions of the Basal Venous Sinuses.* By Wells P. Eagleton, M.D. New York: The Macmillan Company. 1926. (Post 8vo, pp. xxiii + 196; illustrated. 4.50 dollars.)

the reading is rather hard, but as a scientific contribution there is nothing lacking in them. There is also a full analysis of the literature on the subject with bibliography.

The cases are sufficiently numerous for a rational classification into six types depending upon the route by which the sinus is originally infected. Dr. Eagleton points out that even in a case of aural origin it may be necessary to drain an abscess at the apex of the orbit as well as to open the sinus. He also advocates, in certain cases, ligature of the common or internal carotid to give rest to the infected venous sinus, a proceeding for which he assigns good reasons. It may be strictly logical but does not appear to have been very successful, and its drastic nature is likely to cause some surprise, even if it does not excite hostile criticism. Enough, however, has been said to show that Dr. Eagleton has made a careful study of this terrible complication and has made a notable contribution to our knowledge of intravenous infections.

NOTES ON BOOKS.

DR. F. J. BROWNE, formerly of Edinburgh, where he worked with the late Dr. J. W. Ballantyne—to whose foresight he pays a becoming tribute—has produced a useful small book entitled *Advice to the Expectant Mother on the Care of Her Health*.[6] In the first chapter popular prejudices are answered by reciting the benefits to be obtained by the mother from regular visits to the doctor during pregnancy, and their eventual good effects on the child. The remaining chapters are devoted to normal pregnancy, hygiene of pregnancy, common disorders and their treatment, preparation for confinement, and hints on breast-feeding. There are no frightening references to possible complications, and the little book can be given to any expectant mother; by following the instructions given she will derive great benefit.

The Heart,[7] by Dr. A. G. GIBSON, is another of the useful Oxford Medical Handbooks, and in a small volume of one hundred pages the author has given a very fair summary of the present state of knowledge of cardio-vascular disease. The first half of the book is concerned with such subjects as general considerations on the circulation, the clinical examination of the patient, the normal heart and circulation, and instrumental methods of examination; in these chapters nothing seems to be omitted that is important from the clinical point of view. The same may be said of the subsequent chapters dealing with diseases and disorders and with the principles of prognosis and treatment. Students and practitioners, to whom the volume is addressed, will find it well worthy of careful reading.

Mrs. EVELYN FULLER, who is honorary secretary of the Society for the Provision of Birth Control Clinics, has written a pamphlet entitled *On the Management of a Birth Control Centre*,[8] founded on four years' experience at the Walworth Women's Welfare Centre, of which she is the superintendent. This centre was established over four years ago by the Malthusian League, and later taken over by the Society for the Provision of Birth Control Clinics. The account of the equipment necessary for such a clinic is concise yet complete. The choice of premises, arrangement of lighting and plumbing, necessary furniture, and the most useful case records are described and illustrated. The short description of the personnel, which must necessarily include a medical practitioner and at least one medical woman, and the general management of the clinic is good. Opinion is divided on the necessity for birth control clinics, and at the present time voluntary effort must be entirely responsible for their management and control. To those who contemplate undertaking the provision of such a centre this pamphlet provides all the information required.

The forty-third annual issue of the *Year-Book of the Scientific and Learned Societies of Great Britain and Ireland*[9] retains the general arrangement of contents which has been found satisfactory in the past; the size remains about the same. In the preface reference is made to the retarding influence on science and learning generally of the prolonged dispute in the mining industry, but the reports in the *Year-Book* show that work is being steadily carried on. The societies are classified in fourteen groups: general science; astronomy, mathematics, and physics; chemistry and photography; geography, geology, and mineralogy; biology, including microscopy and anthropology; economic science and statistics; mechanical science and architecture; naval and military science; agriculture and horticulture; law; literature, history, and music; psychology; archaeology; and medicine. An index is provided. The section on the British Medical Association occupies three pages, and includes a list of papers communicated at the Annual Meeting at Nottingham last July.

The *Proceedings of the International Congress of Obstetrics and Gynaecology* in celebration of the centenary of the Coombe Lying-in Hospital, Dublin, in September, 1926, have now been issued, and copies may be obtained from the manager of the *Irish Journal of Medical Science* at Parkgate Printing Works, Dublin, price 5s. 6d. post free. The volume is illustrated with numerous plates, some coloured, and a preface is contributed by Dr. L. Cassidy, Master of the Coombe Lying-in Hospital.

[6] *Advice to the Expectant Mother on the Care of Her Health*. By F. J. Browne, M.D., D.Sc., F.R.C.S.Ed. Edinburgh: E. and S. Livingstone. 1926. (Cr. 8vo, pp. 40. 6d. net.)

[7] *The Heart*. By Alexander George Gibson, D.M., F.R.C.P.Lond. Oxford Medical Publications. London: Milford, Oxford University Press. 1926. (Fcap. 8vo, pp. vii + 108; 15 figures. 5s. net.)

[8] *On the Management of a Birth Control Centre*. By Evelyn Fuller. With an introduction by the Hon. Mrs. Graham Murray, O.B.E. London: Society for the Provision of Birth Control Clinics. 1926. (Cr. 8vo, pp. 18; 5 figures. 1s. net.)

[9] *Year-Book of the Scientific and Learned Societies of Great Britain and Ireland*. Compiled from official sources. Forty-third annual issue. London: C. Griffin and Co., Ltd. 1926. (Demy 8vo, pp. vii + 399. 18s.)

BRITISH EMPIRE CANCER CAMPAIGN.

A QUARTERLY meeting of the Grand Council of the British Empire Cancer Campaign was held on January 11th, under the chairmanship of Sir CHARLES GORDON-WATSON. The grant of £600 for the whole-time services of a medical officer to the London Association of Medical Women's Federation, which has been using some of the radium belonging to the Campaign, was renewed for a further period of one year, and a grant of £500 was made to Mr. F. C. Pybus for expenses in connexion with certain cancer research work to be carried on at Newcastle-on-Tyne. Reports were received from the representatives of the Cancer Campaign who have been visiting the principal American and Continental cancer research laboratories. It was stated that research work in the leading American laboratories was of a very varied character and was being liberally supported in the United States. The lines of research were very similar to those in Europe, but several new methods of technique were being employed. Appreciation had been expressed in the United States of the value of the *Cancer Review* published by the British Empire Cancer Campaign as an admirable connecting link between the research workers of the two countries.

A confidential report was received from the deputation of the Campaign which visited Liverpool to investigate the lead treatment conducted by Professor Blair Bell.[1] On the recommendation of the Scientific Advisory Committee a grant not exceeding £1,000 was made to St. Bartholomew's Hospital for the purpose of making new investigations of problems arising from the Liverpool work. This grant will come up for reconsideration from year to year for the next five years, and the investigations will be under the control of a scientific committee at St. Bartholomew's Hospital consisting of Sir Thomas Horder, Sir Charles Gordon-Watson, Mr. W. D. Harmer, Mr. J. E. H. Roberts, Dr. M. Donaldson, Dr. G. Graham, Professor F. L. Hopwood, Mr. J. B. Hume, and Dr. R. G. Canti. The Grand Council expressed the hope that the Liverpool medical research organization, which is now responsible for all arrangements in connexion with the investigations of Professor Blair Bell and his colleagues, will associate itself with the coming appeal of the British Empire Cancer Campaign in Lancashire and Cheshire, which has already been joined by Manchester University. It is announced that the funds subscribed in connexion with this appeal will be mainly devoted to the Liverpool organization, and to Manchester University for medical research at the Christie Hospital.

Among those elected to membership of the Grand Council was Sir D'Arcy Power, who had been nominated as a representative of the Imperial Cancer Research Fund. Sir William Willcox was elected a member of the preliminary inquiry committee of the Campaign.

[1] See BRITISH MEDICAL JOURNAL, December 11th, 1926, pp. 1132 and 1135.

British Medical Journal.

SATURDAY, JANUARY 15TH, 1927.

CHANGES OF TYPES OF DISEASE.

WRITERS of "best sellers" or of paradoxical drama may criticize us, or offer kindly suggestions for the reform of medical training and treatment in the columns of the less responsible lay journals; but so long as the acknowledged leaders in medicine show such a depth of knowledge and breadth of outlook as has been displayed by Sir Humphry Rolleston, the profession will scarcely vouchsafe more than a tolerant smile to the spectacle of fussy impertinence which the lay would-be reformer offers to the public in his highly remunerated articles.

We congratulate the Medical Society on its choice of a President, and Sir Humphry Rolleston on his surely unique record of the successive Presidencies of the Royal Society of Medicine, the Royal College of Physicians, and the Medical Society of London. In taking the changes in the clinical aspects of disease for the subject of his address to the latter society, which is printed in full at page 87, we think that he made a wise choice, for it is of great importance that every now and then we should be reminded of many things which find no place in textbooks, and of the changes which take place around us so gradually that in the stress of daily work we hardly notice them. The speaker did not profess to have any startling new facts or theories to offer to his hearers, nor did he inculcate any methods of treatment, but by looking back on the history of acute, and especially of infective disease, and aided by the perspective which time alone confers, he was able to provide much food for thought and for reflections which may greatly benefit future practice.

Less than fifty years ago, for example, articular gout or podagra, chlorosis, hyperpyrexial articular rheumatism, and malignant scarlet fever seemed to be as much in the fixed and immutable order of things as the movements of the planets, so that no one would have ventured to predict that before the fourth decade of the twentieth century such conditions would have become rare, without our knowing why. We may, indeed, flatter ourselves that improvements in our habits of life may have led to the mitigation or abolition of these scourges, but we have no more valid evidence in favour of this explanation than we have, on the other hand, for the view that those diseases, such as appendicitis, which have increased in prevalence or severity are due to a change or changes of habits and surroundings of a less benignant kind. That old enemy of health, influenza, had been well-nigh forgotten when it revisited us in fury in 1889 after forty years' absence, and in its subsequent outbreaks it has been characterized by such widely different symptoms as to arouse doubts of the identity of the infection in one year with that in another. This reflection reminds us of the fallacy of regarding diseases as fixed morbid entities, for the diseased state of the patient depends upon other important factors besides the invading poison. The discovery of certain micro-organisms and the assignment to them of the causative role in certain specific diseases seemed to justify the assumption that all other infectious maladies were due to similar causes, and that when these causes became known we should be able to assign the maladies in question each to its own microbe as an entity, and to treat it successfully as soon as an efficient microbicide was found. Greater experience has shown that such a view is based on very imperfect knowledge. The manifestations of disease depend for their nature upon more factors than the identity of the micro-organism detected in each case. The seed is no more important than the soil, which, being a living animal organism, may and does vary in its suitability to the growth of the invader. It has long been known—and the knowledge has been used again and again in prophylaxis—that the virulence of the infective organism may be modified, and it had been suspected long before it was established that apparently spontaneous modifications may occur. It has been held that thus diseases which seem to be new, such as encephalitis lethargica, may originate. Moreover, the whole story is not told when a specific organism has been found. It may be accompanied by one of another and less specific kind whose presence and activities profoundly affect the symptoms and the result of the illness. For instance, it is plausibly argued that scarlet fever runs a mild or a malignant course according to the absence or presence of a secondary organism.

Sir Humphry Rolleston referred to many more epidemiological and endemical puzzles. Why has appendicitis become, as it undoubtedly has, so much more common of late years since the days when Parkinson of Hoxton first described it? Why was urinary calculus so much more common in Norfolk than in the rest of England, and why has East Anglia lost its bad eminence in this respect? We have prided ourselves perhaps too much on having stamped out malaria in this country by drainage and other hygienic measures, just as surely as the United States abolished it from the Panama Canal zone. Yet the fens, and the deadly Kentish marshes so well described by Dickens in *Great Expectations*, are little if at all better drained than they were when it was death, or at least dreadful illness, which lurked in them ready to attack the "unsalted" stranger. There are plenty of anopheline mosquitos here, ready to spread the infection, and since the war thousands of men have returned to this country having the malarial parasites in their blood. Yet happily we are practically free from malaria. Our ignorance concerning this and other important pathological problems should not make us despair, but should inspirit our pathologists and urge them on to the many triumphs which are surely awaiting them and their successors in the years to come.

THE NEW EDUCATION PROPOSALS.

IT is not difficult to sustain the thesis that education and health are not two subjects, but merely different aspects of the same subject. This is abundantly clear if health be regarded, as it should be, not as the mere absence of disease, but as the complete development of body and mind—indeed, of the whole personality—to the full extent of whatever powers they possess. The medical profession and health administrators are concerned mainly with one aspect of this development, and the teaching profession and education administrators with another, but the work of all these must not only be intimately associated in its day-to-day performance, but should also involve a broad acquaintance of each with the aims, problems, and difficulties of the others. Such an understanding will not be without its influence upon the practical solution of such difficulties. The school medical service should

form an integral part of the public health service and administration, but that is not to claim that it can be successfully carried on without the hearty co-operation of the teacher and the education officer. The effective conduct of physical exercises and teaching of personal and domestic hygiene in the schools cannot fail to be of great service to the public health, but they are likely to be the more effective if conducted or given by a competent master or mistress in the ordinary course of the school curriculum in general accordance with a syllabus drawn up by an experienced medical authority. Psychological tests applied by the doctor and teacher are valuable, not merely in the diagnosis of mental deficiency, but as aids to the classification and advancement of individual pupils. A disregard by either of the experience and skill of the other would be foolish. Any hiatus in medical supervision such as that which now commonly occurs between the age of 14, when the child leaves school, and the age of 16, when he becomes an insured person, is peculiarly unfortunate, and may be remedied more effectively by educational than by medical reorganization. Practical illustrations of this intimate co-relationship could be multiplied, but these are sufficient to show that such new and far-reaching proposals as those contained in the Report of the Consultative Committee to the Board of Education on "The Education of the Adolescent" must be of profound interest to the medical profession, not only in their broader aspects, but also in many of their details.

On another page we publish an article expounding and discussing these proposals. Broadly, they are proposals for (1) the abolition of the present distinction between elementary, secondary, and technical education, and the regrading of school education into (*a*) primary, up to 11 or 12 years of age, and (*b*) post-primary, after that age; (2) the lengthening of the school life of the normal child or adolescent up to 15 years by compulsion after due notice, and beyond that age by attraction or persuasion; (3) the provision of a variety of school and curriculum in the post-primary stage to meet the varied needs of different pupils, establishing in the main two types of school—the "grammar school," with a curriculum predominantly literary or scientific, and the "modern school," with a more practical or vocational, but not purely utilitarian, bias in its later years; (4) the institution of new areas, with an effective unification of educational administration in each. The exact nature and bearing of each of these proposals is considered in some detail in the article printed at page 114, and, in the light of the comments there made, it is to be hoped that many members of the medical profession will make themselves acquainted with the relevant portions of the report itself. Whatever controversy may arise on certain points, it can hardly be doubted that the general suggestions of the report will commend themselves to all concerned with public health and education.

One matter should receive special notice—that relating to the areas of local administration and unification within them. The almost exact similarity between the proposals of the Consultative Committee as regards education and those of the British Medical Association as regards public health is very welcome. It is perhaps not remarkable, since the Association itself pointed out in its Memorandum of Evidence for the Royal Commission on Local Government that it was probable that the suggestions there made "would be equally suitable for the best provision and administration of education in its various forms." We should like to call attention also to one of the many valuable pronouncements in the appendix on suggestions on teaching. The Committee says: "We regard it as especially important that instruction in elementary physiology and hygiene, developing out of the lessons in elementary biology, should be given to all boys and girls in modern schools and senior classes." Why not in other secondary schools also?

Another passage, paying tribute to the late Dr. J. G. Adami, will be read with particular appreciation by members of the medical profession. It forms the last paragraph of the preface to the report. "We cannot end without recording our sense of the loss which the Committee has sustained by the death of Dr. Adami. He had been a member for the last six years; he had taken a leading part in the preparation of our last report; and he was a member of the subcommittee in which the present report was gradually drafted. He had won the affection as well as the respect of his fellow members; and he contributed generously both to their deliberations and to the shaping of their conclusions."

THE CINEMATOGRAPH.

TWENTY million persons are computed to visit a cinematograph theatre every week in the British Isles. The effect of witnessing these silent performances is of interest from many points of view, and Miss Barry has presented an interesting judgement on the mental effects.[1] She considers that the habit of watching films develops a special kind of alertness which renders the habitué in some degree a better student of human nature; he receives suggestions, and observes manners and gestures that are not apparent to the infrequent visitor. The mental effect she judges to be the very antithesis of witnessing a dramatic performance. At the theatres there is gained a new experience, one that gives temporary vigour. The cinematograph soothes and drugs, so that the watchers come out like sleepers awakened. "The theatre is a tonic, the cinema a sedative. . . . And that is why, after the feverish activity of a day of modern life, the screen calls to us more strongly than the footlights." Investigations have been made from time to time upon the physical effects of these displays. What influence, if any, has the cinematograph upon the eyes? That so many go to the pictures and so few complain is evidence that not much harm is done. But some do complain. They suffer so severely that they can never be persuaded to repeat the experience.

Apparently the first paper on the subject was published in this JOURNAL in 1917, when Mr. Bishop Harman gave an account of observations of the effects produced upon children who frequently visit these displays.[2] Such ill effects as were observed were, he considered, due to glare, flicker, rapidity of motion, bad position, concentration of attention, and duration of exhibition. Many of these defects have been reduced or even eliminated by the improvement of the film, the machine, and the places wherein the shows are given. He concluded that the shows caused no harm to most of the children provided visits were not too frequent. In a later paper dealing with the children in the myopic classes of the London area[3] he recommended that "attendance of children of myope classes at cinematograph displays should be discouraged. Short-sighted children suffer readily from eye fatigue, which may cause more lasting injurious effects. All forms of music should be encouraged,

[1] *Let's Go to the Pictures.* By Iris Barry. Chatto and Windus. 7s. 6d.
[2] Harman, N. Bishop: BRITISH MEDICAL JOURNAL, February 17th, 1917, p. 219.
[3] Idem, ibid., February 2nd, 1924, p. 204.

particularly playing and singing by ear." Dr. J. Alexander Wilson made a contribution on the subject in 1920.[4] Seeking to find the cause of eye fatigue arising out of film exhibitions, he considered that ." Absence of natural colour in the photograph renders identification of the objects more difficult and increases the necessity for fixation and attention." An investigation was made by a joint committee of the London County Council in 1919 into the causes of eye-strain in cinemas; its report furnished much valuable data for the improvement of film production and exhibition, and particularly in regard to the position of the observer in relation to the screen.

Quite recently a new investigation has been set on foot by the Section of Ophthalmology of the American Medical Association, and a preliminary report has been issued.[5] Investigations were made upon 150 persons—university students and senior and junior high school children. The subjects of the observations were first examined as to their visual acuity under conditions that were held to eliminate error, then exposed to film exhibitions for one and a half hours, and immediately retested as to visual acuity. A further set of tests were made on the same lines; but for exposure to the cinematograph the reading of current magazines in a good light for forty-five minutes was substituted. " More fatigue," it is reported, " is evident after forty-five minutes of reading current magazines than by viewing either a black-and-white or a coloured motion picture for one and a half hours, if one uses the visual acuity as a criterion for fatigue. Coloured films are not more fatiguing than black-and-white, but seemed to cause less fatigue. Those who suffer eye-strain from motion pictures are those who are unable to accomplish other ocular work without fatigue." Much of the weight of these findings will depend upon the test for visual acuity employed, and upon the answer to the question whether visual acuity is the proper criterion. In the discussion that followed the presentation of the report criticism turned about two points. The first was whether distance vision of a screen which did not require accommodation was comparable to reading which did need accommodation; the second was that the fatigue experienced at cinema shows was " principally a retinal fatigue, largely associated with the fact that there is a dark interval about half as long as the light interval, interrupting the light stimulus fifteen or sixteen times a second."

The matter is one that is worthy of extended observations, particularly as to the truth of the suggestion that those who suffer from attendance at these exhibitions are those who are unable to accomplish other ocular work without fatigue.

SERUM DIAGNOSIS OF CANCER.

WHILE it is recognized that there is no specific reaction in cancer, it is held reasonable to assume, on *a priori* grounds, that tumour cells invading the tissues must act to some extent like parasites and induce defensive reactions in the organism. Numerous methods have been employed during the last twenty years in the hope of establishing a serological diagnosis of cancer—namely, complement fixation, the precipitin reaction, passive anaphylaxis, hetero- and iso-lysins of the red cells, the cutaneous reaction, carcino-lysins, the antitryptic reaction, the reducing power of the serum, the epiphanine reaction of Weichardt, surface tension reactions, Fischer's reaction of the protein equilibrium of the serum, electrophoresis, or the precipitation observed at the positive pole, variations in the serum content in sugar, cholesterin, amino-acids, fatty acids, and phosphoric acid, in the alkalinity of the serum, and in the quantity and quality of its proteins. The results have been disappointing as contributions to the diagnosis of cancer, although many of the tests seem to indicate that a tissue reaction does actually occur as the result of cancerous invasion, and will repay investigation. One of the tests which have attracted most attention is that devised by Botelho. In its original form it gave a positive result in 48 per cent. of cases of cancer; a closer examination of the conditions of the experiment and the adoption of a modification securing greater uniformity has raised the positive results to 90.4 per cent. Negative results in non-cancerous serums remained practically the same with both methods—namely, about 85.5 per cent. The principle of the test is based on the fact that, with an acidified solution of iodine, cancerous serums, in contrast with the majority of non-cancerous serums, give a permanent precipitate in the presence of definite quantities of the reagent. Botelho subsequently found that if physiological salt solution were added to the serum the results varied with the degree of dilution; with the same serum a positive result was observed in dilute serum and a negative result in concentrated serum. By taking the precaution of using serums with a definite protein content (78 to 80 per cent.) he succeeded in obtaining the more satisfactory results above mentioned. Dr. Tedesco-Polack has recently introduced a modification in the technique, which is said to yield results both more definite and more constant than that used by Botelho himself. Uniformity in the protein concentration is secured with the aid of the refractometer, and Dr. Tedesco-Polack has given full directions for carrying out each step of the test in a pamphlet[1] recently published. Observations were made on 200 cases in the Hôtel-Dieu, Paris; these are fully reported, and the general conclusion drawn is that, when it is remembered that the serological diagnoses were carried out before operation and before a histological diagnosis was made, and often in cases where the clinical diagnosis was doubtful, " it would appear, in view of the high percentage of correct forecasts, that Botelho's reaction, as practised with a preliminary correction of the refractive index of the serum, is of practical value in the diagnosis of cancer; the reaction, moreover, is easy in manipulation and interpretation."

FLOUR SUBSTITUTES IN FRANCE.

MANY people in France have been concerned, from the public health point of view, at the introduction, as the result of the financial difficulties in France, of various substitutes for wheaten flour in the manufacture of bread. It appears that in 1922 a committee advised the Ministry of Agriculture to postpone compulsory use of substitutes for flour, but that in rye-producing districts the mixture of this grain in the proportion of 10 per cent. should be allowed. In December of that year, however, the Ministry issued an order making the addition of 10 per cent. of rye, barley, maize, or rice compulsory. The difficulties in carrying out this order were so great that with the first good harvest it was revoked. This year, however, it has been revived, and buckwheat, manioc or tapioca, and what are called " D grains," have been added to the list of substitutes. The Académie de Médecine recently appointed a committee to investigate the subject, and at a meeting on November 9th Dr. Lapicque presented its report. It found that the use of the substitutes did not endanger the public health; but thought it expedient to carry its inquiries further, and to investigate the effects of the

[4] Wilson, J. A.: *Brit. Journ. of Ophthalmol.*, November, 1920.
[5] *Journ. Amer. Med. Assoc.*, Vol. 87, No. 14, p. 1123.

[1] *Séro-Diagnostic du Cancer par la Réaction de Botelho.* Par Dr. Béatrix Tedesco-Polack. Paris: Les Presses Universitaires de France. 1926. (Roy. 8vo, pp. 89.)

substitutes on the manufacture of bread. Maize, rice, and tapioca cannot, when used alone, be made into bread, since they lack the gluten necessary to agglomerate the starch grains. Added to wheat flour these grains are so much inert powder; and as the cultivation of wheat has aimed at an increased production of starch, the gluten of the wheat is now insufficient to combine the wheat and the substitute into good bread. Barley and rye can be made into bread; but barley bread is not pleasant, and rye bread, so dark as to be called black, does not rise well, and has a flavour more distinctive than agreeable. Buckwheat, though it cannot actually be made into bread, has an effect similar to rye when mixed with wheat flour in the proportion of 10 per cent. D grains are not really substitutes, since they are "offals" extracted from wheat in the production of flour. Their introduction into flour has led to difficulties in obtaining uniformity in the appearance of the bread. According to the committee, the skill of the baker is upset, commercial difficulties arise from the Frenchman's desire for white bread, and indigestion is produced by an unpalatable or unexpected flavour or appearance in the loaf. Uniformity is considered desirable on social and on physiological grounds. This cannot be obtained when several different substitutes are used, either alone or in combination. Control is impossible, since it can only be conducted through microscopical examination —a very difficult method for obtaining quantitative results. From the economic point of view the committee has not discovered any advantage in the use of substitutes; all of them must be imported; and although rice comes from a French colony the piastre of Indo-China is as independent of the franc as the pound sterling or the dollar. The only substitute of importance, in the opinion of the committee, is rye, because in certain districts in France it can be grown better than wheat; but in suitable districts the use of buckwheat might be allowed. For the rest a flour from which less offal has been extracted is productive of economy; and this economy could be increased if millers were not left continually in hopes of a return to white flour. The extraction of flour, says the committee, should be fixed for a period, say, of five years. At the request of the Colonial Union of France the discussion of the report has been postponed.

WHAT IS THE FATIGUE SYNDROME?

THE last quarterly number of the *Journal of Neurology and Psychopathology*[1] contains a paper on fatigue by Dr. R. D. Gillespie, Henderson Research Scholar in Mental Diseases. He begins by saying that there is no satisfactory definition of fatigue. It is possible, however, that his difficulty arises from the application to a special pathological condition of a word that is used in common parlance. To the ordinary man fatigue is a result of sustained labour or exertion. It is physiological, and involves nothing abnormal. The condition with which Dr. Gillespie is dealing appears to be a syndrome to which some people give the name neurasthenia, and of which one symptom, at all events, is "irritable weakness." The use of the term in this connexion appears to be confusing; and the confusion is not diminished by the sense in which it is used by the Industrial Fatigue Research Board. Consequently we find all the definitions of fatigue mentioned by Dr. Gillespie unsatisfactory, whether that to which he objects, "a diminished capacity for work"; or the evasive formula of Janet, "Fatigue is the behaviour of a man at rest: the sensation of fatigue is the desire for that behaviour"; or the definition accepted by Gillespie for clinical purposes: "A person is fatigued when he is capable of less general activity than is usual with him, or when he is capable of less activity than would be expected from his general mental and physical equipment; and when the diminution of activity is accompanied by a sensation of fatigue, or of exhaustion, or of weakness." Would it not be better to invent a new word if neurasthenia is insufficient, and leave fatigue to the layman? According to Dr. Gillespie the cause of the "fatigue syndrome" may be sought in five directions, and first in the constitution of some people who have an inborn defect of function. The second direction is auto-intoxication, but in this case he thinks it equally possible to regard the fatigue and the gastro-intestinal disturbances as having a common origin. Thirdly, overwork has been suggested as a cause; but experimental production of prolonged irritable weakness by work alone is lacking. This statement seems to be in itself sufficient to condemn the technical use of the word "fatigue." Fourthly, emotional causes have been suspected, so that for Dejerine "the real cause of fatigue lies in the emotional equipment." In favour of this theory there is some evidence, both clinical and experimental. Lastly, there are theories which Dr. Gillespie calls "psycho-analytic," according to which neurasthenia is the result of excessive masturbation. The symptoms of the fatigue syndrome are "brain-fag," poor memory, lack of concentration, irritability of temper, increased reflexes, poor sleep, anorexia, and aches and pains. He divides his cases into five groups according to the symptomatic importance of the fatigue of which the patients complained. He considers that the principal place in treatment must be assigned to psychotherapy, but that graded exercises will increase exercise tolerance and vital capacity, hydrotherapy will improve vasomotor tone, and the administration of phosphates will prolong the working power of muscle.

[1] *The Journal of Neurology and Psychopathology.* October, 1926. London: The British Medical Association. Published quarterly. Subscription 30s. per annum; single numbers 3s. 6d. net, post free.

PARA-THOR-MONE.

THE success of Collip in devising a method for preparing a stable preparation of the active principle of the parathyroid gland has at last provided a sound basis for the investigation of the clinical value of this hormone. Until quite recently opinions regarding the experimental and clinical actions of parathyroid extracts were remarkable chiefly for their discordance. The work of Collip provided an explanation, for he showed that the parathyroid contained an active principle of great potency, but that most, if not all, of the principle was lost by the usual methods of preparation. He developed a technique by means of which this elusive active principle could be obtained as a stable preparation, and it is now being prepared on a commercial scale by Messrs. Eli Lilly and Co., under the authority of the University of Alberta. Collip devised a method of biological standardization of the active principle, and the clinical unit is one hundredth of the quantity required to cause an increase of 5 mg. per 100 c.cm. in the calcium of the blood serum of a dog weighing 20 kilograms. The preparation as issued contains 20 units per cubic centimetre; it can be given subcutaneously, intramuscularly, or intravenously. The human dose ranges from 10 to 30 units a day. The drug produces a definite and powerful physiological action, and has been found to be a true specific for the tetania parathyreopriva. It has also been found of value in idiopathic tetany, infantile tetany, and sprue. It has been tried in a number of other conditions, and it is probable that it will ultimately be found to be of great clinical value, for recent research has shown that the blood calcium is unduly low in a great number of diseases. Those who desire to employ this preparation must remember, however, that, like all drugs which produce a definite physiological effect, para-thormone must be used with care and discretion. Collip found that dogs would tolerate a large single dose, but that injec-

tions of even very small amounts repeated at intervals of a few hours invariably proved fatal if the injections were continued. The first symptom of an overdose was vomiting. In clinical cases as much as 100 units of para-thor-mone have been given in twenty-four hours without ill effects, but such doses are unnecessarily large, and could not be repeated without danger. Collip's work has aroused much interest in the medical profession in this country, and limited quantities of his preparation have already been tested here, both experimentally and clinically; it is satisfactory to learn that the drug will now be available for general therapeutic use. The agents in this country are Messrs. Allen and Hanburys, Ltd.

ACETYL-ARSAN IN SYPHILIS.

ACETYL-ARSAN is best known in this country as stovarsol. It was introduced into medical practice by M. Fourneau, and is No. 190 in the series of organic arsenicals prepared by him. The full title of the drug is oxy-acetyl-amino-phenyl-arsenate. Ehrlich commenced his long series of researches on antisyphilitic remedies with a study of the pentavalent arsenical compounds. He prepared acetyl-arsan in an impure form, and thought it to be unduly toxic. Fourneau, however, obtained the drug in a pure form, and arrived at the conclusion that it is a powerful antisyphilitic of very low toxicity. Ehrlich found that pentavalent arsenicals were less potent than trivalent arsenicals, and devoted his attention to the latter in the hope of obtaining a drug of which a single dose would produce a complete cure. In recent years, however, increasing attention has been paid to the pentavalent arsenicals. The new American drug tryparsamide is, for example, a member of this class. The characteristics of stovarsol are that it is absorbed rapidly, is of low toxicity, and is excreted rapidly in the urine. It is stated that it never causes optic neuritis, a danger which led to the abandonment of atoxyl, which was the first pentavalent arsenical to be used extensively in trypanosomiasis. Laurent[1] has employed acetyl-arsan extensively for more than three years, and reports very favourably on its action as an antisyphilitic. He found the drug particularly useful in the treatment of congenital syphilis in infants, because it could be injected hypodermically without producing irritation. Levaditi states that the drug is more active if given by mouth than when injected, and that it is of value in amoebic dysentery and yaws as well as in syphilis. The determination of the exact value of an antisyphilitic remedy is, of course, a problem which requires much work and a long period of time over which to test the drug. The clinical reports, however, are to the effect that acetyl-arsan has a remarkably low toxicity, and that it has a strong antisyphilitic action. The latter action is shown by its effect both on the clinical symptoms and on the Wassermann reaction.

STUDY OF MEDICAL HISTORY.

IN announcing lately that the Annual Meeting of the British Medical Association, to be held at Edinburgh next July, would include a Section devoted to the history of medicine, we mentioned that the University of Edinburgh was the first medical school in Great Britain to recognize the importance of this study by establishing a lectureship in it. This was done eighteen years ago, and appropriately enough the president of the new Section and the lecturer at Edinburgh are one and the same person—Dr. John D. Comrie. In an appreciative editorial comment on this announcement the *Journal of the American Medical Association* of December 4th, 1926, states that a few American medical schools have now regularly established courses in medical history, and that the Johns Hopkins University Medical School has just established a professorship in it, conferring the first appointment on Dr. William H. Welch, whose services to this branch of study, as well as to bacteriology and pathology, are almost as well known to our readers as they are in the United States. Professor Welch, it may be added, is one of the twenty eminent corresponding members of the Historical Section of the Royal Society of Medicine. Commenting on the matter generally our contemporary writes: "The mark of the cultured man is a knowledge of the foundation and processes by which his art and his science reached their prestige. Unfortunately, too few physicians care to give the time or the interest necessary for even a moderate acquaintanceship with medical beginnings." If we may judge from the appreciation shown by readers of very varied tastes for the "Nova et Vetera" column of the BRITISH MEDICAL JOURNAL, and from other signs of increasing attention, we should say that the profession of Great Britain takes a keener and deeper interest to-day than ever before in the historical side of medicine. Apart from any other consideration, an occasional glance at the past helps to keep the present in perspective, and to point the way for future advances.

[1] Laurent: *Annal. des maladies vénériennes*, July, 1923, and April, 1924.

LISTER CENTENARY: LONDON CELEBRATION.

THE centenary of the birth of Lord Lister falls on April 5th, 1927, and a committee has been formed to organize a celebration in London. At the suggestion of the Royal College of Physicians of London, the Royal College of Surgeons of England, and the Royal Society of Medicine, the initiative was taken by the Royal Society, which is acting as a co-ordinating centre. The executive committee comprises representatives of the universities, learned societies, and medical bodies of the country, and, as recorded in the SUPPLEMENT of January 1st, the Council of the British Medical Association has nominated as its representative the President of the Association, Mr. R. G. Hogarth. Invitations to send delegates have been addressed also to various medical institutions in the Dominions and abroad. The celebrations will take place on Wednesday and Thursday, April 6th and 7th. They will include a reception of delegates and the delivery of short addresses by some of them, a commemorative service in Westminster Abbey, a reception at the Royal College of Surgeons, a conversazione at the house of the Royal Society, a dinner with the Merchant Taylors Company in its hall, and the delivery of discourses on Lister as physiologist, pathologist, and surgeon. The details of the programme are still under consideration, and we hope to give further particulars in a later issue. We have already published a preliminary note on the Lister celebration in Edinburgh, which will be held next July in order to coincide with the Annual Meeting of the British Medical Association.

X-RAY CINEMATOGRAPHY.

THE practicability of obtaining on a cinematograph film rapid serial skiagrams of the moving organs of the body and of the movements of the joints in health and disease was demonstrated by Dr. Russell J. Reynolds at a meeting of the Röntgen Society on January 11th. The films which he put through the projector, as was only to be expected, left much to be desired from the point of view of what the photographer would call "pluckiness," and something also from that of sequence, and the results were a prophecy rather than a fulfilment. The subject is still in the experimental stage, but what remains to be done to bring the work to the pitch of efficiency required in practice is chiefly certain optical improvements and the provision of photographic material of greater sensitivity. Dr. Reynolds has been engaged in this work for more than five years, and with the spirit of the pioneer he has been undaunted by frequent disappointments. There are two

methods by which moving *x*-ray pictures may be obtained. One is by the direct action of the *x* rays on a moving film after the rays have passed through the subject under examination. This seems the most obvious method, but it would be extremely costly and difficult to manipulate, if not altogether impracticable. The method Dr. Reynolds has preferred consists in taking a series of photographs of the shadow cast on a suitable fluorescent screen. These photographs are obtained by means of a cinematograph camera fitted with the necessary adaptations for the purpose. One of the principal difficulties has been to obtain sufficient light from the screen to produce an impression on the film, and as the light emitted from the screen is ordinarily blue, a very real problem is presented. Again, it is necessary to protect the camera with its unexposed film from the action of the rays, and this has involved the interposition of a sheet of lead glass between the fluorescent screen and the lens. The subject under examination has also to be protected. To reduce exposures to the minimum the *x*-ray tube is excited only for the interval of time required to permit of exposure, and Dr. Reynolds has worked out an ingenious method of synchronizing the opening and closing of the camera shutter with the switching off and on of the high-tension current. Dr. Reynolds was fortunate enough to secure the co-operation of the Kodak firm in obtaining a specially sensitive film and also a specially prepared fluorescent screen, fully 30 per cent. more brilliant than the French calcium tungstate screen which he had up to that point been using. With these improvements he was able to get quite passable impressions of the thorax of a boy with exposures of a quarter of a second for each picture, and the image of the thorax could be seen even with an exposure of only one-eighth of a second. To ensure the smooth movement of the camera mechanism he installed a small motor, and when this device was brought into play, in conjunction with the latest film and screen obtainable, he was able to get a satisfactory serial skiagram of the hand, showing the skeleton, with exposures of one-eighth of a second. This, together with the thorax picture, which showed the outline of the heart, was exhibited at the meeting. Professor E. A. Owen, of University College, North Wales, who assisted Dr. Reynolds in some of the earlier work, stated that he considered Dr. Reynolds had made a really valuable contribution to medical radiology. The need was for still more rapid *x*-ray films and greater brilliancy of illumination of the intensifying screen under *x*-ray action. One improvement which both Professor Owen and Dr. Reynolds foreshadowed was the use of a quartz right-angled prism to reflect the light from the screen at right angles, and so keep the camera out of the direct path of the rays, with consequent elimination of the lead glass protection. Although Dr. Reynolds projected many feet of film, he pointed out that in practice it would be necessary to take only a very few pictures—just sufficient in most cases to give one cycle of movement, which could, of course, be repeated any number of times on the positive film from the negative without having to subject the patient to prolonged radiation.

RARITY OF MALIGNANT MELANOMAS IN NEGROES.

IT is an old observation that malignant melanotic tumours occur in the anal region of horses; most commonly, according to Sir John Bland-Sutton, the affected animal is grey, but it may be white, and occasionally it is black. But very little reference is made in the extensive literature on melanomas to their racial incidence, and it is therefore interesting to hear from Dr. J. T. Bauer[1] that they have seldom been observed in negroes and deeply pigmented orientals. Melanomas are so striking that their existence is a matter of common knowledge; they cannot be said to be common tumours, and no doubt the difficulty of recognizing them in dark-skinned individuals may help to account for the rarity of their reported incidence. At any rate, this last and commonplace explanation must be taken into consideration before seriously regarding their rarity in negroes as a corollary to their reputed frequency in grey and white horses. Dr. Bauer has collected eighteen examples of malignant melanomas in negroes; in three the eye was affected, in the others the skin; he devotes his attention to the latter. Except for one which arose on the forehead, the cutaneous melanomas occurred on relatively unpigmented parts of the body, eleven being on the feet. Trauma appears to be the most important factor, and may precede the recognition of the growth by several years; this possibility, it is stated, should be considered whenever the nail-bed is injured and an indolent ulcer follows. From histological examination of two malignant melanomas —one of the thumb, the other of the big toe—in negroes, Dr. Bauer concludes that the pigment-containing cells were derived from connective tissue, and that the tumours were melanosarcomas. He does not offer any explanation for the relative rarity of malignant melanomas in negroes, and contents himself with saying that probably a number of undetermined factors are responsible.

[1] J. T. Bauer: *Bull. Ayer Clin. Lab., Pennsylvania Hospital*, 1926, No. 10, pp. 5-12.

THE EPIDEMIC OF INFLUENZA.

THE epidemic of influenza, which it is now recognized is prevailing in various parts of Northern Europe, seems to be of a mild type, though the customary stories of households stricken down almost simultaneously so that it has been difficult to maintain domestic service, are numerous. It has been stated that it is more prevalent in towns than in the country districts, but this does not seem to be true of this country. In Spain, according to a bulletin issued by the Health Section of the League of Nations, an epidemic was prevailing as early as the beginning of December, and in Switzerland it began about December 10th in the cantons of Berne, Basel, and Geneva; it is now prevalent in Zürich and Soleure, where schools have been closed. In Denmark it began in the third week of December. An epidemic had not been recognized in Germany down to January 8th, but the number of hospital admissions in Berlin has been increasing. The *Times* correspondent reported recently that there were 1,000 cases at Cologne and as many as 3,000 at Stuttgart, that the unofficial estimate for the Rhineland was 8,000 cases, and for Baden over 40,000. In Holland it is reported that since Christmas the number of absences for sickness among the staff of the public services is from 10 to 20 per cent., and two or three times as high as in January, 1926. From France the reports to hand refer only to Paris, and it is stated that of the 139 deaths from influenza in that city most were attributed to bronchopneumonia. The epidemic seems to be of the respiratory type in Belgium, and, so far as our information goes, in this country also.

AN AUSTRALASIAN COLLEGE OF SURGEONS.

A PLAN is on foot to establish an Australasian College of Surgeons. Preliminary meetings of surgeons were held some time ago in each Australian State, and two delegates from each and two from New Zealand attended a meeting held in Sydney last August. At this meeting it was agreed that it was advisable to form a College of Surgeons of Australasia, and forty foundation members were nominated. They were asked to take steps to formulate a constitution, and to place their scheme before those surgeons who attend the Australasian Medical Congress which is to be held under the auspices of the British Medical Association at Dunedin, New Zealand, early next month. It is expected that a final decision will then be reached.

INFANTILE PARALYSIS.

THE BROADSTAIRS OUTBREAK IN 1926.

WE are indebted to Dr. A. M. Watts, M.O.H. East Kent (No. 1) United District, for the following extracts from his report on the recent outbreak of acute poliomyelitis in Broadstairs and St. Peters.

The urban district is situated at the north-east corner of Kent, between the boroughs of Margate and Ramsgate, placed on the chalk cliffs jutting out into the North Sea and facing the south-east, with a coast-line of nearly four miles. There are two and a half miles of promenades, and the foreshore provides several stretches of firm sands, which are swept daily by the sea. The population found by the census of 1921 was 15,471.

Owing to its reputation as a healthy seaside resort there are many private boarding schools and day schools in the district, the population of these being about 1,150 children. The total number of private schools is about twenty-six. There are also some thirteen convalescent homes, with accommodation for 900 persons, mainly children, and also holiday homes. Some 850 children attend the four elementary schools, and 150 a secondary school provided by the Kent County Council at Ramsgate, where 800 children belonging to the four sanitary districts in the Isle of Thanet are educated.

Cases of Poliomyelitis and Polio-encephalitis Notified (1926).

For the week ended—	In England and Wales.	In Kent.
September 4	43	1
" 11	53	2
" 18	77	5
" 25	44	3
October 2	68	1
" 9	51	5
" 16	78	23
" 23	89	37

Previous Cases in the District.

It is an interesting fact that during the five years ended 1925 only two cases of the disease were notified in the urban district, and they occurred in 1925; that no cases were notified in 1926 prior to October 14th; that no cases were notified during the first ten months of the year in the borough of Margate, in the adjacent rural district of the Isle of Thanet, and only two in the borough of Ramsgate.

Possibility of Infection being Introduced from Abroad.

I understand that there were severe and fatal outbreaks of poliomyelitis and polio-encephalitis in the neighbourhood of and along the coast of Brittany during the summer. It is possible that the infection was brought to France by American visitors. The boy who died in the school in Broadstairs first affected had spent his holidays in Brittany, and he may possibly have introduced the disease into the school. At another school the first case, an abortive one, was that of a boy who spent his holidays in Brittany. In a third school a boy who died had spent his holidays in Norway.

Inquiries were made as to whether any of the cases had been recently vaccinated. It was found, however, that none had been done.

It is well known that the disease may be conveyed from person to person by healthy carriers, and the investigations which were made in connexion with this outbreak tend to show more than ever the importance of this factor.

History of the Outbreak.

On October 14th I received eight notifications of cases at a private boarding school, one of a mistress in an adjoining girls' school, and of four cases in the town—two in two day schools. On the next day I received two notifications, one of these being a boy who attended the Ramsgate County School. On October 16th I had four notifications, two more private schools being affected. On October 18th I received nine notifications, five fresh schools being affected. On October 19th thirteen notifications were received, one other school being affected. On October 20th four cases were notified, one being a patient in a convalescent home. On October 21st three were notified; one of these belonged to one of the elementary schools. On October 23rd four were notified, two of these at another convalescent home. On October 25th three were notified. On October 26th four were notified, one of these in an elementary school. On October 27th two were notified; one of these attended an elementary school and one was in another private school. There was one notification on October 29th and one on November 11th. This makes a total of 63. One of the notifications was withdrawn, which leaves a total of 62. In addition to these cases, two boys from the private school first affected were removed to their homes and afterwards developed the complaint, and one of them died. Then there was the case of a waiter, aged 22, employed in a hotel in Broadstairs during the season, who left the town on October 6th, developed the disease on the 16th, and died in a London hospital on October 21st; and that of a young woman, aged 29, who stayed in Broadstairs from October 2nd to October 9th, was taken ill on the 18th, and died on the 22nd. Apparently she was not well during her stay in Broadstairs. These two cases were not notified. Then there was the case of the brother-in-law of the headmaster of one of the schools, who had been staying in Broadstairs for three weeks. He visited the school on October 10th and had lunch there. He left Broadstairs the following day and was taken ill with the complaint on October 16th (boys were taken ill in the school on October 13th). It will thus be seen that the total number of cases in connexion with the outbreak was probably not less than 67, and that the total number of private schools affected was thirteen. In these, thirty-five children were affected, one mistress, and two members of domestic staffs. There were three cases in the Ramsgate Secondary School; two in the Broadstairs Council School (Girls' and Infants' Departments); and one in St. Peter's Church of England School (Infant Department). In one convalescent home there were five cases (two children and three members of the staff), and in another convalescent home there was one case.

In addition to the above fifty cases there were twelve others not connected with schools or institutions, except indirectly—for example, one whose brother attended a school where a case occurred.

The following table shows the number in attendance and of cases in the various schools.

Boarding Schools.	No. in Attendance.	Cases.
A.—Boys	73	9 boys, 1 staff
B.—Girls	53	3 girls
C.—Girls	74	2 girls, 2 staff
D.—Boys	21	5
E.—Boys	28	1
Totals	249	23
Mixed Boarding and Day Schools.		
F.—Boys and girls	50	5
G.—Boys	42	1
H.—Boys	24	3
I.—Boys	27	1
J.—Girls	6	1
K.—Boys and girls	26	2
L.—Boys and girls	70	1
M.—Boys	73	1
Totals	318	15

On October 14th and the five following days thirty-one cases were notified in twelve private schools. The age of the oldest person notified was 30 and the youngest 1 year.

The numbers notified between the following ages were: From 1 to 5 years, 7; 5 to 10 years, 18; 10 to 15 years, 27; 15 to 20 years, 5; 20 to 25 years, 2; 25 to 30 years, 3—a total of 62 cases. The males numbered 38 and the females 24.

The number of cases removed to the Isle of Thanet Joint Hospital was nine. Of these, five belonged to a convalescent home, two were on the staffs of two private boarding schools, and of the two others one attended the Ramsgate County School and the other the Broadstairs Elementary School.

Deaths from Infantile Paralysis.

Following are brief notes of four cases of infantile paralysis in which death occurred.

1. A boy, aged 10, at a private boarding school, was taken ill on October 10th; temperature 102°. The following day the temperature was 101°, and his back was stiff. On October 12th he had symptoms of asthma in the morning; in the afternoon the head was retracted, and at 5 o'clock he had convulsions which lasted twelve minutes and were followed by death.

2. A woman, aged 28, a teacher at a girls' boarding school, attended St. Peter's Church on October 10th. She went to Ramsgate on October 11th, and was taken ill the following day at 6 p.m. She died at midnight on October 14th, from respiratory paralysis, after losing all reflexes and developing paralysis of the deltoid.

3. A boy, aged 8, a day scholar at a private day and boarding school, was taken ill with vomiting and coryza on October 10th. He continued getting about until October 15th, when he was seen by a doctor. His temperature was then 102°; he complained of severe headaches and some stiffness of the neck. The knee-jerks, which were present on October 16th, were absent on the following day; on this day the temperature was 101°, pulse 120, and nystagmus was present. On October 18th there was paralysis of both lower limbs and of most of the muscles of the upper limbs; the next day the diaphragm also was paralysed. On October 20th the temperature was below normal, pulse 120, respirations 40. On October 23rd the patient became cyanosed; pulse rate 160; he was conscious until a quarter of an hour before the end.

4. A boy, aged 5, who attended the infant department of an elementary school, was taken ill on October 25th. A doctor was sent for early on October 26th. The symptoms included paralysis of the palate, absence of knee-jerks, and stiffness of the neck. He died about 2.30 p.m. from paralysis of the respiratory centre.

The cases which were notified varied in intensity—some were very mild and had no paralysis, perhaps only a rise of temperature with nystagmus, others presented serious symptoms. Two boys who attended the same school and sat next to each other had the meningeal type of the disease, but both recovered. Others had paralysis of the lower limbs. In several cases the patients were taken ill with symptoms which were thought to be due to influenza. These subsided, but after four or five days the symptoms of infantile paralysis developed.

The date of onset of the earliest case notified was October 4th, but half the cases were taken ill between October 10th and 13th; then eighteen cases between October 14th and 18th; the remainder between October 19th and November 6th.

Most of the schools affected were situated in the northern portion of the district and near the sea. The school with the largest number of cases was the one situated nearest the sea.

The serious effect which is produced by an attack of infantile paralysis is, of course, the loss of power which results. Out of sixty-two cases notified in this outbreak, paralysis was noted in twenty-nine. As to how many of these patients will be permanently paralysed it is impossible to say.

As four deaths occurred out of the sixty-two cases notified, the mortality was 6.4 per cent., but if the outbreak is considered to have consisted of sixty-seven cases, then we have seven deaths, which gives a mortality of 10.4 per cent.

The interesting features of the outbreak were the facts:

(1) That the disease was limited mainly to the children attending private schools in the district, particularly boarding schools; that most of these schools were situated in the northern part of the district, and that the private schools had very little communication with each other.

(2) That the disease started almost simultaneously in all the schools affected, and that the outbreak ceased almost entirely at the end of a fortnight.

(3) That the disease did not spread to the adjoining districts.

(4) That the disease did not spread in the elementary schools.

It is now two months since the last case was notified, and there is every reason to believe that the urban district is free of infection.

EDUCATION OF THE ADOLESCENT.

THE Consultative Committee of the Board of Education has just published its Report on the Education of the Adolescent.[1] It is an extremely important and very interesting discussion of the subject. While it is, of course, primarily of interest to those who are directly concerned, whether as teachers or as administrators, with public education in England and Wales, it should make its appeal also to many others who are interested in a more general way in the bearing of our educational system on the social, economic, and political life of the community, as well as to those, as in Scotland and elsewhere, who have to do with an educational organization of a different character. The suggestions of this report, too, if carried into effect, must have a marked influence upon the school medical service in all its aspects, and involve repercussions, educational and medical, upon public health in general. No apology is needed, therefore, for commending its study to the medical profession as to others. The fact that the report extends to some three hundred and sixty pages in all need not be a deterrent, for it is pleasant to read, both as to print and as to style, and if the portions of the report which are of the nature of preface and appendix as well as those of an historical character are ignored, as they may well be by some readers, the actual number of pages to be read may be reduced to not many more than one hundred. Within that relatively small amount of reading matter there is contained abundant material for the consideration of all who are concerned for the welfare of the children, and so for the future welfare of the country.

The Position To-day.

The present position of the organization of public education in this country is as follows. All normal children are required to attend school from 5 years of age until the end of the school term in which they become 14, usually described as the age of 14+. Children who are physically or mentally defective must attend school from 7 to 16 years of age. Local authorities for elementary education are required to provide accommodation and suitable instruction for all these children, except that small proportion of them who are receiving a satisfactory education under some other auspices. There are other schools, carrying on education to the age of 16 or 18 years, which are aided or maintained by local authorities for higher education, either established by those authorities or of an older foundation. Usually at least 40 or 50 per cent. of the children in these "secondary" schools have come from the public elementary schools, and it is obligatory to provide in them a considerable number of free places each year for such children. These "free-placers" enter the secondary school as the result of an examination at the age of about 11 years. It is only recently that the obligation to attend school to the age of 14 years has not been subject to a considerable number of exemptions at the option of education authorities, and as a result of the stricter obligation it is found that a larger proportion of children than previously tend to remain at school beyond the compulsory age. For such of these children as have not entered secondary schools it is necessary to provide a suitable advanced curriculum, and most progressive authorities of populous places have provided this either by special classes or courses at the top of the ordinary school, or by drafting such children into schools (commonly known as central schools) with a special curriculum with some practical or vocational "bias," or, to a much smaller extent, into junior trade or technical schools in which the work aims at a substantial measure of personal craftsmanship of a character appropriate to local industries. The children are as a rule admitted to the advanced courses or to the central school as a result of the same examination as that for the free places in secondary schools—that is, at about 11 years of age.

[1] London: H.M. Stationery Office or through any bookseller. 1926. 2s. net paper; 3s. net cloth

"Elementary" and "Secondary" Education.

The Consultative Committee thus found that the distinction between "elementary education" as conducted in public elementary schools and in central schools on the one hand, and "secondary education" as conducted in secondary schools and technical schools on the other hand, was, in fact, breaking down, and that the condition of things is at present educationally anomalous and administratively absurd. The education given in some central schools under one code of regulations and one system of grants by one kind of authority does not differ fundamentally from that given in some secondary schools under a different code of regulations and a different system of grants by a different kind of authority. The Committee found, too, that it was the practically unanimous opinion of those who submitted evidence to it, whether administrators or teachers, that there should be a regrading of education into two phases: (1) primary education, the education of childhood, and (2) post-primary education, the education of adolescence, and that the division should be made in the average case at the age of 11+. Medical and psychological opinion will endorse this. Educational organization should be based on the actual facts of child development. The beginning of a new stage in education should, if possible, coincide with a new phase in the life of the individual, and, as the report says:

"By the time that the age of 11 or 12 has been reached children have given some indication of differences in interests and abilities sufficient to make it possible and desirable to cater for them by means of schools of varying types but which have, nevertheless, a broad common foundation."

The strong recommendation of the Committee on this matter is sure at no distant date to have practical effect given to it, in spite of certain formidable administrative difficulties which will be referred to later, and in spite of some awkward questions with regard to denominational religious instruction to which it may give rise in some instances.

Proposed Regrading and Reorganization.

Broadly, it is recommended that (in addition to the junior technical or trade schools which should be continued in suitable localities) the new post-primary or secondary education should be of two main types: (1) the "grammar school" type, corresponding to that given in the present "secondary schools" which, though they may vary considerably among themselves, follow in the main a predominantly literary or scientific curriculum and carry the education of their pupils forward to the age of 16+ or even 18+; (2) the "modern school" type, giving at least a three (preferably a four) years' course from the age of 11+, with a practical or vocational bias in the last year or two years. This second type of post-primary education might be given either in special schools, corresponding to the present central schools, or in some cases by separate and properly organized advanced courses in the ordinary school. This last alternative deserves careful consideration. The great majority of the Committee think that such an arrangement should be regarded as temporary or transitional, though they recognize that it will be necessary for some time to come. No doubt there are advantages in marking the new phase of education by the removal of the pupil to a different building, but there is force in the note written by Miss E. R. Conway, in which she is supported by the National Union of Teachers, that:

"The teaching of the older and brighter children acts as a stimulus to the staff, and their removal will destroy a source of interest for the teachers and of ambition for the children. The fact that older and younger children are dealt with in the same school building is also a valuable aid to character training, giving the older pupils that sense of responsibility to their younger and weaker colleagues which develops into the mutual care and consideration which is so helpful in the life of a community."

It is at all events clear that there may be local authorities in whose case the situation, accommodation, and arrangement of their schools, and the general character of their teaching staff, may make it both economically and educationally preferable to develop and equip advanced courses in their elementary school buildings (with sufficient division to mark the new phase) rather than to build new central or special schools, and that in some localities this may even be desirable as a permanent and not merely as a temporary arrangement.

The Age of Compulsory School Attendance.

Two important and interrelated questions at once arise from a consideration of this scheme for educational regrading and reorganization: (1) Should the age of compulsory school attendance be raised to 15+ or even 16 years? (2) What has become of the day continuation schools contemplated by the Education Act of 1918? The former question receives prominent consideration in the report: the latter is apparently ignored, perhaps because the Committee regarded it as an established fact that those schools would never materialize. Yet it remains true that under the consolidating Act of 1921 (Sections 75 to 79) it is the duty of education authorities to establish and maintain part-time day continuation schools for young persons already in employment, who were to be compelled to attend them for a certain number of hours each week between the ages of 14 and 18 years. Such schools were established for a short time in London and in Birmingham, and other authorities were preparing to establish them when the obligations were suspended. It is a fact, therefore, that this system of further education has had no chance of proving its worth, and there are those who, like Mr. H. A. L. Fisher and Sir Robert Blair, would prefer its re-establishment to any compulsory raising of the school age for whole-time attendance. There can be little doubt, however, that the Committee is right in taking for granted that the great majority of employers, parents, and teachers alike would prefer for the adolescents with whom they have to deal one year's further whole-time attendance at school rather than the compulsory part-time attendance extended over several years. The Committee makes the definite recommendation that "legislation should be passed fixing the age of 15 years as that up to which attendance at school will become obligatory after the lapse of five years, that is to say, at the beginning of the school year 1932," though three of the members, while agreeing in principle, do not agree that the changes should, or can, be effected in so short a period of time.

Unfortunately the President of the Board of Education has issued with the report a letter in which he declares that he has no intention whatever of adopting this recommendation; and this though there is no prospect of the alternative method of day continuation schools maturing. He points out, truly enough, that at present local education authorities have it in their power, with his sanction, to raise the school age in their own areas, and that only two authorities have actually availed themselves of this; but he omits to mention that the one definite pronouncement on this matter by the representatives of education authorities in conference has been "that it is not desirable to raise the school-leaving age to 15 unless the change is made compulsory over the whole country." (Association of Education Committees, June, 1924.) The reason behind this is that progressive authorities are prevented from adopting a by-law raising the age in their area because this would immediately be a handicap to their children in the labour market as compared with the children in neighbouring areas who could enter employment in local industries at the earlier age.

It is, of course, certain that the extension of compulsory school life by even one year would involve most authorities in a good deal of increased expense for accommodation, equipment, and teaching staff, though perhaps not so much as is commonly stated. This is the reason why long notice should be given, as suggested, of any extended obligation; and no doubt this is the real reason why the Minister, Lord Eustace Percy, opposes it. It must be recognized, too, that there is a relatively small proportion of children in the public elementary schools of a mental calibre which does not justify a continuance of school education beyond the present compulsory age. This, together with urgent economic considerations in some instances, would make necessary the continuance of the proviso allowing education authorities to grant exemption from attendance in suitable cases. The trouble is that without legislative compulsion, and with the present discouraging temper and restrictive

policy of the Board of Education, there will be large numbers of boys and girls whose further education would be an individual and national advantage, who will never have any opportunity of receiving it.

An Interesting Parallel.

One big administrative difficulty would arise in the adoption of the proposals of the Consultative Committee. Though temporary troubles may be surmounted by friendly arrangements between local education authorities, the existence within county areas of separate authorities for elementary and for higher education would have to disappear. The Committee recognizes and states this, and makes proposals to meet the situation. It is of very great interest to find that these proposals are almost exactly parallel to those made by the British Medical Association with regard to public health administration where similar difficulties arise. These are set out in some detail in the Memorandum of Evidence to be given before the Royal Committee on Local Government (SUPPLEMENT, January 30th, 1926, pp. 36-38), particularly in paragraphs 10, 11, and 16. It was there suggested that complete powers of public health administration should be given to areas that reach a certain minimum standard of population, and that for complete unification of such administration a radical revision of areas would be desirable, instituting larger areas arranged with some natural urban centre as the focus of each. The Association's memorandum even says—

"It seems probable also that areas so constituted would be equally suitable for the best provision and administration of education in its various forms. In each case it is possible that a few larger administrative groups or provinces would be desirable, in the one case for university or higher technical institutions, and in the other for the establishment of teaching hospitals."

The corresponding recommendations of the Consultative Committee are:

34. We recommend that at as early a date as possible legislation should be introduced for the transference to authorities for higher education of all powers and duties of those authorities for elementary education only which are concerned with areas that do not reach a certain minimum standard of population, and for the vesting of full powers in respect of higher education in those authorities for elementary education only which are concerned with areas that attain such a minimum standard.

35. Finally, we recommend that consideration should be given to the question whether it may not be a desirable objective of educational development that provincial authorities for education should be instituted, in which the authorities for elementary education only and the authorities for higher education shall both be ultimately merged.

It would be an immense gain, not only to administrative simplicity, but to practical efficiency, if reforms on these lines were carried out; and the reinforcement of the British Medical Association's somewhat radical proposals by these important recommendations of the Consultative Committee to the Board of Education is to be welcomed.

France.

[FROM OUR PARIS CORRESPONDENT.]

The Laennec Celebrations.

How ought a great man to be honoured? The question was asked long ago by King Ahasuerus, as may be read in the Book of Esther. Our age seems singularly wanting in imagination, for the answer of the modern Haman may be summed up in one single word—speeches. We have just been celebrating the centenary of Laennec by a flood of speeches, of the magnitude of which the official list gives only a feeble notion. A foreign delegate said to me that he had had to digest not less than forty "ragouts" of eloquence in three days, and he had still to go to the final banquet! It was considered that the memory of the great French clinician should be celebrated officially by the city of Paris, the head of the State, the Academy of Medicine, the Faculty of Medicine, various hospital organizations, and, lastly, the Pasteur Institute. The foreign delegates had no easy task, and nobody will be surprised to be told that it was Sir StClair Thomson who discharged it with the greatest success; he managed to establish a record both for brevity and for humour. He charmed his audience by declaring that he was doing his best to undermine the work of Laennec by the use of the bronchoscope, doing with that tube inside what Laennec had done with his tube outside. The famous first stethoscope used by Laennec was exhibited in the hall of the Academy of Medicine, as were many other touching personal souvenirs. It is not without interest to observe that Laennec spelt his name in the way it is spelt here, and pronounced it in two syllables. Very discreetly did some of the foreign delegates teach a lesson to the successors of Laennec, but so successfully that the Academy, in its report of the centenary, at last suppressed the unfortunate diaeresis. Among the speeches special attention ought perhaps to be drawn to Professor Calmette's remarkable review of his own researches in the vaccination of the new-born against tuberculosis. Is not the truest homage we can pay to our great dead to carry on their work? And has not Calmette found a suitable answer to the question put by Ahasuerus?

Vaccination and Encephalitis.

At a recent meeting of the Société Médicale des Hôpitaux M. Comby related a case of acute encephalitis occurring in relation to vaccination. The patient was a girl, aged 18 months, and the symptoms appeared twelve days after vaccination. Lumbar puncture yielded a fluid containing only four lymphocytes per cubic millimetre, 0.20 of albumin, and 0.50 of sugar. After five days of coma, accompanied by contractures, the patient recovered. About fifty analogous cases have been collected in which the results were less fortunate. Dr. Netter has argued that the vaccine was not the direct agent in producing the encephalitis, which he attributes to a secondary infection. Nevertheless, vaccinia is a general disease, and the inoculation of cerebral substance from patients who had died of the condition produced a vaccinal pustule in the rabbit. After full consideration of the subject Dr. Netter advises, now that we are able to use very virulent vaccines, that vaccination should be very lightly performed by a simple single scarification.

Martyrs of Medicine.

We have all been profoundly moved by learning of the death, at the age of 24, of Henri Vadon, a hospital intern in Paris. He was a young man who had already attracted the attention of his teachers by his brilliant intellect and by his capacity as a worker. He died of experimental cancer, if one may so say, after an accidental prick made when conducting a *post-mortem* examination on a person who had died of cancer. As Professor J. L. Faure has pointed out, this is the first authentic observation of inoculation of cancer in man, and deserves to find its place in literature as proof positive of the parasitic nature of cancer. Henri Vadon was not under a delusion as to the nature of the disease with which he had been attacked; he watched its progress from day to day, and continued to perform his duties and to carry on his researches to the extreme limit of his strength. His tragic fight against death lasted for over two years.

The BRITISH MEDICAL JOURNAL has already announced the attempt upon the life of M. Froment, professor of neurology at Lyons; readers will be glad to know that he is making satisfactory progress. Professor Froment was treated where he fell, in his own ward, and his first act when he was again allowed to begin to do some work was to inquire into the condition of his would-be assassin, who was also his patient.

G. MONOD.

England and Wales.

THE MANCHESTER COMMITTEE ON CANCER.

THE lecture by Professor A. H. Burgess on cancer of the gastro-intestinal tract, published in these columns on January 1st, was one of a set the Manchester Committee on Cancer arranged to be given during this winter session as part of its campaign of propaganda. The lectures are addressed to the medical profession, but the propaganda will eventually be extended to the public by various methods. The Manchester Committee owes its origin to the medical officer of health, Dr. R. Veitch Clark, who some time after the issue by the Ministry of Health of its memorandum on

cancer to local authorities called together a provisional committee which, with its subcommittees, held preliminary discussions. In December, 1924, it was decided to reconstitute the committee in a more formal manner so as to bring it into official relation with the bodies in the city of Manchester concerned with the problem of cancer in all its aspects. A communication was therefore sent to the various hospitals in Manchester, to the University, and to the Public Health Committee of the city council, and to some other bodies, asking them to nominate representatives. The reconstitution was completed towards the end of February, 1925.

The Manchester Committee on Cancer now consists of officially appointed professional and lay representatives from the Public Health Committee of the city, from the University, from the Manchester Royal Infirmary, the Christie Hospital and other large hospitals in the city, and the Radium Institute. The object of the committee is to establish a properly correlated and single effort in Manchester for cancer research and for the control and treatment of all cancer cases. In November, 1925, a public appeal for £20,000 was launched to cover the expenses of an agreed plan of work for a period of three years; as a result £12,000 was received, and the limited scheme which the pecuniary resources made possible was put into operation in May, 1926. The chairman of the committee is Dr. Veitch Clark, and the deputy chairman Sir William Milligan, who is also chairman of the Executive Subcommittee; a Research Subcommittee has been formed, with Dr. E. M. Brockbank as chairman, and Professor R. B. Wild as deputy chairman. Dr. C. C. Twort has been appointed pathologist to this committee; he will work at the University, and will have the assistance of a full-time chemist, Dr. Ing, Ph.D.Oxon., who has recently been engaged in conducting special researches on oils. Dr. Twort, who began duty in May, had completed the equipment of his laboratory at the end of July, and was then able to begin research work. The main line of experimental research to be undertaken is in connexion with the origin and prevention of mule-spinner's cancer, a condition which, as our readers are aware, is closely associated with the Lancashire cotton industry. Another line of work the committee has instituted is a special statistical inquiry, for which purpose two full-time investigators have been appointed—Dr. Gretta Mary Wardle and Dr. John Murray—to conduct certain specified pieces of work; both have had special experience in this direction. They will be guided by the Ministry of Health's memorandum on the results of treatment in cases of cancer of the breast for the years 1910-13 and 1919-1921, an analysis of which was published on August 14th, 1926 (p. 318). A regular and complete system of record-keeping in respect of all cases of cancer in the city is being established, and specimens from cases of cancer in the hospitals and in private practice will be collected for submission to the histologist in the hope that conclusions may be reached as to the efficiency of the treatment afforded to the different types of cancerous growths. Further, each case of cancer occurring in the city, or treated there, will be subjected to continuous supervision, so that any recurrence of the growth or intermediate condition associated with the cancer may be recognized at the earliest possible date and the patient referred immediately to the private medical practitioner, with a view to suitable treatment being provided without delay. At present the two special investigation officers mentioned are engaged in reviewing the records of the Manchester Royal Infirmary and the Christie Hospital; in this way 687 cases have already been investigated. The cases are followed up in the homes and the results obtained by treatment noted.

Dr. C. Powell White has been appointed histologist (part-time) to examine specimens from each case of cancer coming to the knowledge of the committee. This work is considered essential to ensure correct diagnosis, which is, of course, an important part of adequate and successful treatment. By the correlation of this information with that obtained from the records and specimens and the type of treatment adopted in each case knowledge of the best form of treatment of the different types of cancer will, it is hoped, be improved.

A special propaganda subcommittee has been appointed to take action with a view to informing the public on the subject of cancer, its incidence and treatment. The Public Health Committee of the city has delegated its statutory powers in this respect to the Committee on Cancer, and the Manchester Insurance Committee has sent a subscription to the funds for this specific purpose. A course of post-graduate lectures on cancer, for medical practitioners, of which Mr. Burgess's lecture was one, forms part of the general scheme. The course, which is given in association with the University of Manchester and the Manchester Royal Infirmary, will consist of twelve lectures; the first was given by Dr. Veitch Clark on October 1st, 1926, and the last two, on x rays and radium in the diagnosis and treatment of cancer, will be delivered in February. Leaflets for distribution to the general public are in course of preparation, and the question of public lectures on cancer is at present under consideration.

HEALTH OF LONDON IN 1925.

On August 21st, 1926 (p. 347), we reviewed that portion of Volume III of the Annual Report of the London County Council for 1925 which contains the reports of the county medical officer and school medical officer. The following observations refer to the remainder of the volume, which was published more recently as a separate part.

Under its tuberculosis scheme the County Council is itself responsible for the residential treatment of patients. It is reconditioning its institution at Grove Park, Lee, for advanced cases of both sexes. The metropolitan boroughs, on the other hand, provide dispensary treatment. One borough council proposed to equip its dispensary for natural and artificial sunlight treatment. While it declined to approve a grant for such equipment at a borough tuberculosis dispensary, the County Council took steps to provide this elsewhere in 1925.

Under the powers possessed by the Council, 2,300 samples of milk consigned to London railway termini from thirty-three counties were bacteriologically examined; 107 samples, or 4.6 per cent., contained tubercle bacilli. The Council's veterinary inspector visited 98 farms concerned, and examined 2,864 cows. Of these cows 53, or 1.8 per cent., were tuberculous or otherwise unhealthy; 30 others had been slaughtered. The County Council is the local authority for administering the Tuberculosis Order, 1925—which came into force on September 1st, 1925—in the county outside the City of London. The Order aims at the destruction of every cow suffering from tuberculosis of the udder or giving tuberculous milk, and of every bovine animal showing definite signs of tuberculosis. As the Council, under its General Powers Act of 1904, already had authority to seize and slaughter any cow suspected to be suffering from tuberculosis of the udder, the Order will not greatly modify its practice in this field. The Milk and Dairies (Consolidation) Act, 1915, which also came into operation on September 1st, 1925, provides for the repeal within one year of so much of any local Act as covers the same ground. The powers of the County Council, therefore, under Part IV of the London County Council (General Powers) Act, 1907, with respect to the taking and examination of samples of milk, were due to expire as at August 31st, 1925. The bulk of the new Act, as affecting London, will be administered by the metropolitan borough councils.

In connexion with the smoke nuisance, it was arranged during the year with the railway companies running steam-driven trains in London that a series of joint observations should be made from the footplates of engines by the Council's coal officers and officials of the companies. The observations showed that, while some smoke proceeding from locomotives may be the result of negligence, there are occasions when its emission cannot be entirely avoided. In the matter of main drainage, experiment has established the fact that London sewage responds well to activated sludge treatment. The sludge is sunk in the Black Deep of the Thames estuary. Allegations had been made that waste material deposited here by the Council and others was causing shoaling of the Edinburgh Channel, one of the principal access-ways to London for large ships; but the Board of Trade, having heard evidence during the

year, saw no reason to discontinue the present uses of the Deep. As regards housing, the Council in 1925 completed 2,023 houses and flats with accommodation for 14,848 persons. Between 1894 and the close of 1925 the output of the Council has been 21,178 tenements and houses and three lodging-houses, sufficient for 140,000 people. The programme of work in hand comprises 15,000 additional houses, apart from rehousing under slum clearance schemes.

GIFT TO ST. THOMAS'S HOSPITAL.

A contribution of £104,000 has been made to the general funds of St. Thomas's Hospital by Mr. W. R. Morris, in response to an appeal by Mr. George Roberts, a governor and one of the almoners, who has himself contributed generously. In an official statement by the secretary of the hospital it is announced that, while an outlay of about £175,000 a year is required, the assured annual income of the hospital only reaches the figure of £73,000, the balance having to be provided by voluntary help. The patients and those responsible for them contribute about £44,000 each year, so that a considerable balance remains to be raised. Mr. Morris's donation will therefore render substantial assistance in placing the finances of the hospital on a more satisfactory basis, and the deep gratitude of the governors has been expressed to him for his munificent gift at a time when help is so much needed.

NORTHAMPTON GENERAL HOSPITAL.

The 183rd annual report of the Northampton General Hospital records that the year 1925 was memorable in marking the completion of fifty years' work on the part of the Northamptonshire Hospital Week Committee in obtaining funds for the hospital. During that period a sum of nearly £133,500 was raised. It is noteworthy that in the first ten years of its existence the amount raised was £7,187, while during the fifth decade the contributions exceeded £88,400. On December 1st, 1925, the Lord Lieutenant for the county, the Marquess of Exeter, supported by the mayor and corporation of the borough, formally declared open the Crockett wards, and the Bishop of Peterborough dedicated the building. In order to secure an adequate annual income to maintain the services of the hospital efficiently, the committee is endeavouring to obtain a larger number of annual subscribers of one guinea and upwards, since the majority of the in-patients are totally unable to contribute towards their maintenance in hospital. The number of in-patients treated during the twelve months from August 1st, 1925, to July 31st, 1926, was 3,533, an increase of 511 over the preceding year. The ordinary income, £33,879, was, however, less by £741. The expenditure amounted to £36,497.

Scotland.

INFECTIOUS DISEASES IN SCOTLAND.

As mentioned last week, the commencement of an outbreak of scarlet fever at Grangemouth has been traced to a dairymaid. The epidemic has now reached considerable proportions, 104 cases having occurred by January 7th. As many as 26 cases had been notified in one day. It has been found necessary to utilize the hospitals of various neighbouring local authorities for the patients. The schools remain closed, and the Public Health Committee of Grangemouth Town Council has recommended that no social or other functions should be held meanwhile. The epidemic appears still to be of a mild type, and a large proportion of the persons affected are adults, some being over 50 years of age. An epidemic of measles has manifested itself in Edinburgh, where last week 140 cases were notified. The cases are generally of a mild type, but the more severe are being removed to hospital, especially from houses which are poor or overcrowded. A severe epidemic of measles occurred at the corresponding season last year, and in the present epidemic many children who then escaped are now being attacked.

ROYAL INFIRMARY OF EDINBURGH.

At the annual general meeting of the Court of Contributors to the Royal Infirmary of Edinburgh it was reported that negotiations for the purchase of the site of George Watson's College, which is situated immediately to the west of the infirmary, have now been completed. As has already been announced, it is intended to use a portion of the college site for the erection of a new gynaecological and maternity hospital, and arrangements have been made to amalgamate the Royal Infirmary and the Royal Maternity and Simpson Memorial Hospital. The conditions of purchase, which were described some time ago, included a gift of £10,000 from Sir John Findlay to adjust the difference between the price which the infirmary was prepared to give and that which the Merchant Company was prepared to accept for the college and its site. It is understood that it will not be possible to adapt the existing building of the college for hospital purposes, and that it will therefore be demolished. The site will not be available for several years.

The report presented to the recent annual general meeting of the League of Subscribers to the Royal Infirmary showed that a total sum of £21,382 had been gathered from groups of employees in public works and business establishments, and from staffs of schools, banks, and Government offices. This was £26 more than in the previous year, and would, it was stated, have been much larger but for the depressed industrial conditions connected with the coal strike. Of the total, £15,862 was raised in Edinburgh, and the remainder from country districts. The number of workers who contributed was 1,406. The largest contribution was that of the London and North-Eastern Railway Company workers, who subscribed £2,273. Since the institution of the league eight years ago the contributions had increased almost fivefold, and altogether a total of £137,574 had been collected. These figures do not include contributions from miners in the Lothians and Fifeshire, who for many years have contributed systematically; in a normal working year a sum of £15,000 had been regularly subscribed from the coal and shale workers. Sheriff G. L. Crole, a member of the board of management, said that the managers of the Royal Infirmary were greatly encouraged by the practical interest that the workers themselves took in a hospital which was peculiarly their own. It was reckoned that the amount lost by the coal stoppage and industrial unrest had been £7,555. Expenditure had also gone up, and a serious item had been the outlay for 6,000 tons of coal used by the Infirmary during the year at an average price of 66s. a ton, but at a cost of 91s. 8d. a ton during the strike. Fortunately, it had been possible to make savings to the extent of £4,000 in various departments, and the total increase in expenditure had been thereby reduced to £2,149. It had been possible to show a credit balance on the whole year's accounts amounting to £14,600. The negotiations with the Edinburgh Merchant Company regarding the purchase of George Watson's College would, he believed, soon be completed. The college would have to be pulled down and the Infirmary would not get entry upon the site for at least five years, but the ground would ultimately be of great use for extensions. There would probably be a large new maternity and gynaecological hospital on the site, and ninety beds would be freed for the surgical department. There would also be space to build a new nurses' home, which was urgently required.

WAR PENSIONS HOSPITAL.

The Glasgow Town Council has agreed to extend for one year the tenancy of the ground at Bellahouston Park at present occupied by the War Pensions Hospital. An application had been made on behalf of the Government for a lease of five years from Whit-Sunday, 1927, and the agreement to continue the lease for one year is a compromise reached in consideration of the large amount of work which is still being done at this hospital. Sir George T. Beatson, chairman of Glasgow War Pensions Committee, headed a deputation to the town council, and urged upon this body the importance of continuing the hospital. He stated that 200 beds were still occupied, that 1,284 cases had been

treated during the past year, and that 491 operations had been performed in the hospital. He did not think that the civil hospitals would be able to undertake this work, and it would be a difficult and costly matter to find a new institution.

NURSING SERVICES IN SCOTLAND.

At the thirty-eighth annual meeting of the council of the Scottish Branch of the Queen Victoria's Jubilee Institute for Nurses, which was held in Glasgow last month, Mr. Ewan Macpherson, chairman of the Scottish Board of Health, moving the adoption of the report, entered a plea for greater co-ordination between the services undertaken by the nurses of this institute and the work of health visitors under local authorities. It had been found possible in some counties and in one or two burghs to make arrangements under which the district nurses carried out as part of their duties the work of health visitors. There were some 400 district nurses acting as part-time health visitors, although certain local authorities felt that the work could be done better by their own whole-time visitors, of whom there were between 400 and 500 in Scotland. The Board of Health had done everything in its power to encourage co-ordination. The Countess of Mar and Kellie, who was in the chair, stated that there were now 418 nursing associations, employing 802 nurses, affiliated to the institute. These nurses had undertaken nearly 100,000 cases during the past year, upon whom 1,750,000 visits had been paid. This was an increase of 162,000 visits. In addition 300,000 visits had been paid in connexion with public health work, including child welfare. In response to the appeal in connexion with a national memorial to Queen Alexandra, approximately £75,000 had now been received out of the £150,000 aimed at. The money collected would all be spent in Scotland, where some 600 additional district nurses were required. When this was achieved every corner in Scotland would have the attention of skilled nurses.

Correspondence.

PHARYNGEAL DIVERTICULA.

SIR,—In your issue of last week Dr. William Hill questions my opinion that the tumour in the case published by Godlee and Bucknall (*Lancet*, 1901) under the title of "A pharyngeal pouch of large size removed by operation," was a cervical air sac originating from the laryngeal ventricle, and not a pharyngeal diverticulum.

Henle (Breslau), in 1904, recorded a similar case of an elderly man, who for ten years had suffered from an "aerial tumour" on the right side of the neck, which had gradually developed. It extended upwards, under, and beyond the angle of the jaw, and downwards close to the clavicle. Its connexion with the larynx was shown to exist by a canal through the thyro-hyoid membrane.

These cases, of which a considerable number have been recorded, represent reversions to the condition present in the ape, and it was to these air sacs that Virchow gave the name of "ventricular laryngoceles."

May I say at once that my opinion was not formed in a casual way, nor on the bare facts, as suggested by Dr. Hill, that the sac contained air, and that its neck was traced up to the thyro-hyoid membrane, though this may have appeared so since I was unable to enter into details owing to the short time at my disposal during the discussion on his paper at the British Medical Association meeting at Nottingham.

If Dr. William Hill will refresh his memory by referring to my monograph "The so-called prolapse of the laryngeal ventricle, and eversion of the sacculus," a paper read at the third summer meeting of the Section of Laryngology, Royal Society of Medicine, in June, 1921, and published *in extenso* in the *Journal of Laryngology and Otology* in June, 1922, he will find that I touched on the subject of laryngoceles, and under this heading I referred, in considerable detail, to the case under dispute. Before regrouping this case under that heading very careful consideration was given to all the evidence obtainable, as also to other cases recorded. The skilled advice and support of the late Professor S. G. Shattock—the greatest pathologist since the days of Virchow—was also sought and obtained. Everyone knows with what meticulous care he always investigated any problem or case submitted to him before he expressed any final opinion. It appears to me very unlikely that his opinion was wrong.

In any case I am afraid that Dr. William Hill has not yet convinced me that I have erred in so regrouping this case, since all the evidence he has brought forward in favour of the air sac being a pharyngocele, with perhaps the exception of the microscopical report, equally favour the assumption, and in my opinion more so, that the tumour was a laryngocele. Rare as laryngeal sacs are in man, I believe I am correct in stating that cervical air sacs of pharyngeal origin are rarer still.

In the case recorded by Godlee and Bucknall an indirect laryngoscopic examination showed no abnormality in the larynx, nor would one expect to find any abnormality in the case of either a pharyngocele or a laryngocele. If, however, this case had occurred at the present day, and not during the early days of endoscopy, and an investigation had been carried out by the direct method of examination in conjunction with the passage of a probe through the thyro-hyoid membrane, it is possible that the probe would have been detected held up in the ventricle of the larynx. It appears to me to be much more likely that the deglutitory symptoms which Dr. William Hill refers to were caused by the pressure of the tense air sac on the pharynx, rather than "tumefaction due to inflation of the tissues of the faucial pillar and adjacent side of the pharynx." Has this latter condition ever been observed in connexion with a pharyngeal air sac? I doubt it.

The rapid increase in size of the air sac in the short space of six months from a tumour described as looking, when first seen, like an enlarged thyroid lobe, to an enormous sac extending to the middle line of the neck, the posterior border of the sterno-mastoid muscle, up to the angle of the jaw, and down to the clavicle, is surely strong evidence of its laryngeal origin and connexion. Such rapid increase in size could hardly occur by inflation through a small internal opening in the region of the posterior faucial pillar, especially if this opening—as suggested by Dr. William Hill—was at the same time obstructed by tumefaction.

I agree with Dr. William Hill that Godlee and Bucknall were undoubtedly aware of the existence of cervical air sacs originating from the ventricle of the larynx, but this does not exclude the possibility that, impressed with the idea that the tumour was connected with the pharynx, they did not give sufficient thought or consideration to the possibility of its origin from the laryngeal ventricle. Throughout the notes of their case there is not even a suggestion made by them of this possibility.

So far as the microscopical evidence is concerned it would appear quite possible that, under the impression that the air sac communicated with the pharynx, the glands were taken to be muco-salivary instead of mucous glands, with which they might have been readily confused. As is well known, the sacculus ventriculi laryngis contains a large number of mucous glands.

Since the publication of Dr. William Hill's letter I have discussed the case with Mr. Lawrence, at the Royal College of Surgeons, and he is also inclined to agree with Professor Shattock. He considered that it would be most interesting to have the microscopical section re-examined with a view to clearing up any discrepancy in the gland structure. I have therefore communicated with University College Hospital in the hope that the slide can be traced. If it is traced and definite muco-salivary glands are found in the section then, and only then, will I believe that Dr. William Hill is right, for the presence of these glands would distinctly suggest, if not confirm, the pharyngeal origin of this air sac. I shall then consider that he has proved his case. On the other hand, if they are found to be mucous glands, I have no doubt that Dr. William Hill will do the same.

I wish to take this opportunity of correcting an error in Dr. William Hill's reply to the discussion on his paper at the Nottingham Meeting (see BRITISH MEDICAL JOURNAL,

1926, ii, pp. 1171-72). He says "the suggestion of Keith, mentioned by Dr. Irwin Moore, that 'pneumatocele' was a preferable term to 'aerocele' he was prepared to accept, but he could not agree with the suggestion of Dr. Moore, following Sir Arthur Keith, that the pneumatocele recorded by Godlee and Bucknall was a laryngocele." These opinions were not expressed by Sir Arthur Keith but by Professor Shattock.—I am, etc.,

London, W.1, Jan. 11th. IRWIN MOORE.

MEDICAL POSTS IN INDIA.

SIR,—From time to time advertisements appear in the JOURNAL inviting applications for medical posts in India. Intending applicants for any such would be well advised carefully to consider the terms offered. In the JOURNAL dated November 27th, 1926, under the heading "Lucknow University," applications are invited for the post of professor of anatomy. The terms offered are Rs.1,450 a month; passage money is not mentioned, but it is definitely laid down that private practice is not allowed. From this salary 8 per cent. is to be deducted to go to the university provident fund, so that the salary is in reality Rs.1,334. There are two more deductions, neither of which is mentioned; these are income tax at 9 pies per rupee, which amounts to Rs.62½ a month, and profession tax, which is not under Rs.10 a month. The net salary is thus Rs.1,261 and 12 annas, say Rs.1,260. It is improbable that any house under Rs.150 a month will be available. A motor car is absolutely essential; its cost to keep and run, exclusive of depreciation, will be about Rs.200 a month after purchase. Clubs will come to Rs.100 at the very minimum, and servants not less than Rs.200 monthly. The total is Rs.650; this leaves only Rs.610 a month for the purchase of food, clothes, and the hire or purchase of furniture. The result of all these deductions and expenses will be that possibly, after exercising great and uncomfortable economy, the amount left over each month will come to Rs.300, which equals just over £20.

If by chance the applicant is married there would be the necessity of keeping his family in the hills for at least four months in the year, because Lucknow is impossible in the hot weather. On the pay offered this could not be done. The pay is not a living wage, as any "successful" applicant would find to his sorrow.

On a par with the above were the recently advertised vacancies for an entomologist and one or two similar scientific posts in Calcutta—a town where the expenses would come to at least three times those of Lucknow.

As it is quite impossible for anyone who has never been in the East to have any conception of what he will be up against, it is only fair that the examples given should be made public.—I am, etc.,

December 16th, 1926. OBSERVER.

THE SMALL HOSPITAL.

SIR,—It would warm many of our hearts to see in your mighty JOURNAL a plea for the really small and efficient hospital. The big hospital authorities who have now command of the situation seem determined to despise and make difficult the position of these hospitals, and yet I believe that from the point of view of maintaining the efficiency of the medical profession generally and getting improved treatment of the sick, the small local hospital has a very strong case.

There are two movements on foot to-day which will tell directly against these hospitals.

1. The training of nurses. None of this training in such a hospital counts now, though six months' training under proper conditions would be very valuable. The consequence is that the obtaining of probationers to start in a small hospital is now very difficult.

2. The new pension scheme. This scheme, in my opinion, is going to be of very little use to nurses. It is a scheme conceived in the interest of whole-time officials—a good thing, no doubt, but not understood as the main object. The effect on the small hospitals will be to add considerably to the cost of administration, as they will have to join in, but the premiums they will have to pay will be paid simply in order to exist—they will not be of any benefit to them. The scheme will in the end simply mean an addition to the salaries of the full-time official, and perhaps to a few of the best-paid nurses in the large hospitals.

It is astonishing how difficult it is to get the ear of administrators; they love the easy and the big thing, but the small local hospital is a very human institution which is worth preserving.—I am, etc.,

Letchworth, Jan. 2nd. NORMAN MACFADYEN.

DIET FOR DIABETICS.

SIR,—I read with interest the reviews of *The Diabetic Life* and *Self-Care for the Diabetic* in your issue of January 1st (p. 18), but was surprised to find the two following remarks stated as if they were proven and generally accepted, at least outside Great Britain—namely: "... the severest cases may, with the help of insulin, take considerable quantities of white or brown bread with advantage to their nutrition"; and "it begins to be time that 'high fat' diets for diabetics gave place to ordinary diets with adequate insulin." These statements by your reviewer would give the impression that the above method of treatment has been widely accepted as being the best. It has certainly been advocated by a few workers in France and America, but has been rejected as unsuitable by the great majority of workers on the Continent, America, and Great Britain. In common with many others, I tried the high carbohydrate method in the early days of insulin, and found it unsuitable in all except the mildest cases for the following reasons: (1) A marked hyperglycaemia resulted except during a few hours of the day when insulin action was at its maximum; (2) the liability to unpleasant hypoglycaemic reactions was frequent if enough insulin was given to bring the blood sugar anywhere near normal; (3) the increased expense of and local discomfort from the large and more frequent doses of insulin were a considerable handicap.

My reason for writing this note is to correct the impression that high carbohydrate diets and large doses of insulin have been proved and generally accepted as the best form of treatment. On the contrary, the "very English attitude" of giving moderate amounts of carbohydrate, total calories, and insulin is widely accepted in all countries as the most practical and satisfactory.—I am, etc.,

G. A. HARRISON.

Department of Chemical Pathology,
St. Bartholomew's Hospital, Jan. 8th.

MONGOLIAN DEFECTIVES.

SIR,—In your issue of December 4th, 1926 (p. 1080), under the above heading, Dr. Crookshank states that "the homologies between the Mongolian defective, the racial Mongol, and the orang are indisputable." He further mentions that all good Darwinians accept as axiomatic the assumption that homologies prove descent.

Now, is there not another factor in this question which is even of more importance—namely, the order of development of the principal organs? The comparison of man with the anthropomorphous apes brings to light a very important fact—namely, the existence of an inverse order in the development of the principal organs. In man the sphenoidal angle of Virchow diminishes from the time of birth, whilst in the ape it is always increasing. A similar contrast has been remarked by Gratiolet upon the brain itself.

In the ape the temporal sphenoidal convolutions, which form the middle lobe, make their appearance and are completed before the anterior convolutions which form the frontal lobe. In man, on the contrary, the frontal convolutions are the first to appear, and those of the middle lobe are found later.

It is evident that an organized being cannot be a descendant of another whose development is in an inverse order to its own. Consequently, man cannot be considered as the descendant of any simian type.—I am, etc.,

REGINALD COCK, M.R.C.S.Eng.

London, E.2, Dec. 31st, 1926.

THE AGE INCIDENCE OF RHEUMATISM.

SIR,—The most recent observations upon the age incidence of rheumatism agree in stressing the early age in childhood at which symptoms appear, and the interesting letter of Dr. K. Simpson in the JOURNAL for January 1st (p. 42) lends further support to this conclusion.

One of the most urgent problems in medicine is that of heart disease in childhood. Modern statistics unite to show the extreme frequency with which carditis is associated with the initial onset of rheumatism. Thus, out of 100 fatal cases of rheumatism in children under 12, Poynton found *post-mortem* evidences of active heart disease in no less than 86. More recently, Mackie has investigated in New York 366 cases of rheumatic fever in children. Of these, 78.1 per cent. of children between 5 and 10 manifested signs of heart disease during the first attack, whilst between 10 and 15 the percentage rose to 79.2. This being so, our primary aim should be to prevent the first attack. Acute rheumatism being so markedly hereditary and familial in distribution, we should concentrate upon children coming of such parentage in the endeavour to raise their resistance to the rheumatic virus, of whatever nature this be; for to such procedure only can the term "prevention" be truly applied. In this regard I agree with Llewellyn that most of what has been written on the prevention of rheumatic heart disease deals neither with the prevention of rheumatism nor of heart disease, but with their arrest or control when either or both are actually present.

In order, then, effectively to cope with the problem of the potentially rheumatic child it is essential that the signs which point to a possible onset should be detected at the earliest opportunity. To wait for the development of definite stigmata of the disease is to lose much valuable time. It is probable that rheumatism resembles tuberculosis in that the seeds of disease become sown in soil which is rendered suitable for their germination by faulty hygiene and other environmental factors from infancy onwards.

Between the ages of 2 and 5 there is a gap in continuity of medical supervision. This gap should be bridged, and to this end a "children's cardiac clinic" was instituted last year under my direction at the St. Marylebone General Dispensary to deal particularly with the type of child generally regarded as "rheumatic." Parents are encouraged to bring their children for examination whenever possible prior to the manifestation of rheumatic symptoms, and for treatment where the disease already exists. The preventive aspect is held to be the prime objective. By timely advice to parents, together with the institution of appropriate therapy to raise the *vis resistentiae* of the child against unfavourable climatic and other influences, it is believed that weakly children of rheumatic stock may themselves be aided to work out their own immunity.—I am, etc.,

London, W.1, Jan. 8th. J F. HALLS DALLY.

ANTIGENS FOR THERAPEUTIC IMMUNIZATION.

SIR,—Messrs. Parke, Davis and Co. have made the mistake of taking my strictures in a personal sense. This is in no way correct. It was the *system* whereby uncontrolled vaccine products can be put on the market that I was indicting and not this particular firm. As a matter of fact, I have a very great respect for Messrs. Parke, Davis and Co.'s work.—I am, etc.,

Eastbourne, Jan. 9th. GEOFFREY SHERA.

The Services.

DEATHS IN THE SERVICES.

MAJOR WILFRID COWAN NIMMO, R.A.M.C. (ret.), died in Queen Mary's Hospital at Roehampton on January 2nd, aged 47. He was born on August 8th, 1879, was educated at Westminster Hospital, where he gained an entrance scholarship, and took the M.R.C.S. and L.R.C.P.Lond. in 1903. After serving as house-surgeon and as resident obstetrical assistant at Westminster Hospital, he entered the R.A.M.C. as lieutenant in 1905, and attained the rank of major in 1915; he was placed on temporary half-pay on account of ill health in 1925, and retired three months later (July 31st). He served as a surgical dresser in the Imperial Yeomanry Field Hospital in South Africa in 1900-1, and also throughout the recent great war, being mentioned in dispatches in the *London Gazette* of October 19th, 1914.

Obituary.

C. EDWARD WALLIS, M.R.C.S., L.R.C.P., L.D.S.,

Senior Dental Surgeon, King's College Hospital.

WE much regret to announce that Mr. Edward Wallis, senior dental surgeon and lecturer on dental surgery at King's College Hospital, died in that hospital from bronchopneumonia on the night of January 4th. His name will long be associated with the dental clinics of the London County Council, to which he devoted a large part of his time and energy from their inception twenty-five years ago. He will be remembered also as one who in his life and work exemplified the fact that dentistry is a part of medicine.

Charles Edward Wallis, eldest son of the late Augustus Wallis, was born in London in 1868. From Bedford Grammar School he went to King's College, London, and worked as a student in the old hospital building behind the Law Courts while Lister was still in charge of surgical wards there. Having obtained the M.R.C.S. and L.R.C.P. diplomas in 1894, he went for the first of many voyages, as ship surgeon, to the Arctic regions and the tropics, Canada, the Cape, and the United States. After a further period of study in Paris and at the Royal Dental Hospital, he took the L.D.S. in 1897, and decided to start practice in London as a dental surgeon. Election to the visiting staff of King's College Hospital and of the Victoria Hospital for Children soon followed, and at this early stage in his career he became impressed with the possibilities of oral hygiene in the young. A part-time post in the Public Health Department of the London County Council gave him the opportunity to make investigations, and in 1907 he presented a report to the International Congress of School Hygiene on the condition of children's teeth in the elementary schools of the metropolis. In 1911 he was appointed to supervise the school dental clinics set up by the London County Council, and as a result of this experience he wrote an account of the foundation and management of such clinics for the guidance of others. He published also several papers on the care of the teeth in public elementary schools, and contributed the article on dental care to Newsholme's *School Hygiene*.

These activities by no means used up Wallis's capacity for work. He was a member of the representative board of the British Dental Association, and for some years chairman of its editorial committee; he served on the International Committee for Oral Hygiene, and was consulting dental surgeon to a number of public institutions and charities. For some years he lectured on surgery to the nursing staff of the Victoria Hospital for Children, and in many other ways maintained contact with medicine as a whole. Thus he was a frequent attendant at medical meetings, and had been vice-president of the Chelsea Clinical Society and of the Medical Officers of Schools Association. As a Fellow of the Royal Society of Medicine he took an active part in the work of the Odontological Section, and served on the council of the History of Medicine Section. Indeed, historical subjects always made a strong appeal to him; he was an enthusiastic archaeologist, and had a wide knowledge of old London and old Paris. At the Annual Meeting of the British Medical Association in Birmingham in 1911 he was vice-president of the Section of Odontology. A few years later he was elected to the Metropolitan Counties Branch Council, and from 1916 onwards he held office in the Marylebone Division, first as honorary secretary, then as vice-chairman, later as chairman, and throughout as representative of the Division in the Representative Body. Since 1920 he had been a member of the Journal Committee, and his friendly interest in the work of the JOURNAL could always be counted upon.

Dr. E. GRAHAM LITTLE, M.P., in a tribute to Mr. Wallis's memory, speaks of his wide range of information and refers in particular to a lecture on the art of war in Rome which Mr. Wallis founded on the fine quarto volume *De re militari* published in the year of Shakespeare's death

by Justus Lepsius. This lecture, which had been delivered originally to the Casual Club in London, Mr. Wallis afterwards gave at many places along the Western front in France. Dr. Little also refers to Mr. Wallis's paper on ancient dentistry given to the Royal Society of Medicine, and mentions that he was engaged at the time of his death in preparing an essay on Harley Street, for which he had been collecting material for many years. Dr. Little concludes his tributes as follows: In his professional work Wallis enjoyed the respect and confidence of the whole profession. He never spared himself, was singularly indifferent to pecuniary rewards, and was always ready to do a kindness. His courage in facing persistent ill health was such that even his most intimate friends were often unaware that he was ill; pain never dimmed the brightness of one of the gayest and most cheerful spirits that our generation has produced.

MR. BISHOP HARMAN writes: A record of long and consistent work such as that of C. E. Wallis is impressive. But to those who knew Wallis intimately the impress of his personality was still greater. He was a man of even temper, genial, kindly, with ever a smile of greeting. Even when his health and vitality was at the lowest, when illness confined him to the wards of his hospital, King's, he would still present a smile to his visitor. To meet him at the meetings of the Association was a pleasure. His gift did not lie in speech or debate, though he could hold his own when moved to the effort; but he had a flair for general converse, such as marks the beginnings and endings of meetings; then his interest was obvious, and kindly suggestions came freely, and not infrequently bore good fruit. The Marylebone Division will miss him, so also will the Metropolitan Counties Branch Council, and not a few members of the Representative Body. One of his chief hobbies lay in the discovery of old social interests. A walk with him about the old streets behind the former Association House and round Covent Garden was a delight and a source of unfailing illumination.

SIR HARRY EDWARD DIXEY, D.L., M.D.,

Chairman, King Edward VII Memorial Sanatorium, Worcestershire.

WE regret to announce the sudden death, on January 6th, of Sir Harry Dixey, at his residence in Malvern, in his seventy-fourth year.

Harry Edward Dixey, who was born in 1853, was the son of the late Charles Anderson Dixey of Highgate. He was educated at Highgate School and the University of Aberdeen, where he graduated M.B., C.M. in 1878, proceeding M.D. in 1881. He held the post of house-surgeon to the Preston Royal Infirmary, after which he began to practise at Droitwich and Malvern, where his professional ability and keen interest in public life won him a very distinguished position. For administrative work he showed remarkable talent. He held the chairmanship of the St. John Brine Bath Hospital in Droitwich, and of the King Edward VII Memorial Sanatorium for Worcestershire. He was also chairman of the Worcester City and County Nursing Association. He found time to play an active part in local government and was an alderman of the Worcestershire County Council; he was a deputy lieutenant for the county, and a justice of the peace, and in 1921 he was appointed sheriff. In previous years he had been an active supporter of the Volunteer movement, holding a commission as surgeon captain in the 8th Worcestershire Volunteer Regiment. He had long been a member of the Worcester Division of the British Medical Association, and served as its representative from 1906 to 1910. He was president of the Worcester and Hereford Branch in 1899, and a member of the Parliamentary Bills Committee in 1900-1.

His kindness and tact, together with his skill in various forms of organizing and administrative work, was widely recognized and highly appreciated. In recognition of his distinguished public services the honour of knighthood was conferred upon him last year. He married Ellen Mary, daughter of Mr. J. Dyson Perrins of Malvern.

DR. JAMES JARDINE, who died at Richmond, Surrey, on December 7th, 1926, in his eighty-first year, was educated at Edinburgh University and at the Royal College of Surgeons, Edinburgh, where he graduated M.B., C.M. in 1871. In the same year he was appointed parochial medical officer of Middlebie in Dumfriesshire, and in 1874 became surgeon to the British Consulate in Kiu Kiang, China, where he remained till 1880. From 1882 until a few years before his death he practised in Richmond and helped to found the Richmond Nursing Guild. Always keenly interested in gynaecology, Dr. Jardine was elected, in 1904, a member of the council of the British Gynaecological Society. For many years he was a Fellow of the Royal Society of Medicine, and a member of the British Medical Association. His conscientious keenness in clinical investigation won him the respect and affection of his patients, by whom he will be greatly missed. He leaves a widow, three sons, one of whom is in the medical profession, and two daughters.

DR. WILLIAM MILNE ANDERSON, who died on December 29th, 1926, aged 68, was the third son of the late Alexander Anderson, Esq., of Skene, Aberdeenshire, and younger brother of Lieut.-Colonel James Anderson, R.A.M.C.(ret.). He was educated at Aberdeen Grammar School and University, where he graduated M.B., C.M. in 1881. He held the posts of house-physician and house-surgeon at the West London Hospital. In 1886 he commenced private practice at Dulwich, where he held several local medical appointments. He was for many years a member of the British Medical Association and of the West London Medico-Chirurgical Society, and contributed several papers to medical journals. Dr. Milne Anderson's personality endeared him to his many patients and friends. He was very hard-working and led a strenuous professional life. Overwork during the war caused his health to fail, and in 1920 he retired to live at Alford in Aberdeenshire, where he hoped to regain health. He improved for a time, but became eventually a confirmed invalid. He leaves a widow, two daughters, and a son.

Universities and Colleges.

UNIVERSITY OF CAMBRIDGE.

THE following candidates have been approved at the examination indicated:

DIPLOMA IN MEDICAL RADIOLOGY AND ELECTROLOGY (*Part I*).—P. Bauwens, E. E. Carter, G. Chambers, J. C. Coutts, A. M. Craib, R. McG. C. Crawford, Jane G. E.-F. Cummins, H. Fisher, N. Fram, D. B. H. Hallett, Minnie E. Hope, W. H. Hudson, J. J. Luddy, A. T. Makar, W. Morrish, A. Orilansky, R. D. Saigol, W. H. Steele, E. J. Tyrrell, S. A. Withers, K. J. Yeo.

UNIVERSITY OF LONDON.

UNIVERSITY COLLEGE.

THE University College Committee, with the authority of the Senate, has accepted a gift of £500 from Lady Godlee for the foundation of a Rickman Godlee lectureship, in memory of the late Sir Rickman Godlee, Bt., F.R.C.S., a Fellow of the College.

The following distinctions and awards have been reported to the committee: The Professor of Anatomy, Dr. G. Elliot Smith, to be Huxley Lecturer at the University of Birmingham for the current session; the Royal Medal of the Royal Society has been awarded to Professor A. V. Hill; the Symington Prize for Anatomy of the Queen's University, Belfast, has, on the advice of the council of the Anatomical Society of Great Britain and Ireland, been awarded to Dr. H. Woollard.

The following candidates have been approved at the examinations indicated:

M.D. (*Branch I, Medicine*).—Elizabeth M. Cowie, E. R. Cullinan, F. Davies, V. Feldman, Dorothy Gibson, R. S. Johnson, A. J. Kohiyar, W. A. Robb, N. W. Snell, J. G. Wilson. (*Branch III, Psychological Medicine*): Emma M. Store. (*Branch IV, Midwifery and Diseases of Women*): H. J. Malkin, H. K. V. Soltau, Edith E. Stephens. (*Branch V, State Medicine*): D. Davidson.

M.S.—(*Branch I, Surgery*).—G. F. Gibberd, W. R. Spurrell.

UNIVERSITY OF LIVERPOOL.

THE following candidates have been approved at the examination indicated:

D.P.H.—(*New Regulations*): J. S. Bradshaw, Helen Standring, S. A. Talib, O. F. Thomas, T. S. Townsend. (*Old Regulations*): Olive L. Jones, Eleanor Lancelot, Vera M. Macfarlane.

Medical News.

COLONEL SIR JOHN LYNN-THOMAS, K.B.E., C.B., C.M.G., F.R.C.S., has been appointed a Deputy-Lieutenant for the County of Cardigan.

THE sixth international congress of the history of medicine will be held at Leyden and Amsterdam from July 18th to 23rd, 1927, under the patronage of the Prince of the Netherlands, with Dr. J. G. De Lint as president. Those intending to join the congress should send their names to the secretary, Dr. J. E. Kroon, Stationsweg 25, Leyden, before April 1st. The subscription, which is 10 florins for members of the International Society of the History of Medicine, 5 florins for their relatives and medical students, and 12.50 florins for others, should be sent to the treasurer, Dr. F. W. T. Hunger, Van Eeghenstraat 52, Amsterdam.

AT a meeting of the Society of Medical Officers of Health to be held at 1, Upper Montague Street, Russell Square, W.C., on Friday, January 21st, at 5 p.m., there will be a discussion on the education of the public in regard to modern methods of disease prevention (premunization, immunization, etc.). Different points of view will be presented by the following speakers: The government department, Dr. S. Monckton Copeman, F.R.S.; the medical officer of health, Dr. C. W. Hutt; the press, Lord Riddell; the public, Dean Inge; the laboratory director, Professor J. C. G. Ledingham, F.R.S.

THE Post-Graduate Hostel's programme for next week includes an address on Tuesday by Dr. J. M. T. Finney of Baltimore on the surgery of gastric and duodenal ulcer. On Wednesday Mr. Foster Moore will lecture on acute glaucoma, and on Thursday Professor A. W. Sheen will discuss the early recognition of surgical emergencies. The meetings are held at the Imperial Hotel, Russell Square, W.C., at 9 p.m., and dinner (5s.) is served at 8. All medical practitioners are welcome.

THE Fellowship of Medicine has arranged daily clinical demonstrations in ophthalmology at the Royal Eye Hospital, Southwark, during the week beginning January 17th, at 3 p.m., and on January 19th Mr. D. C. L. Fitzwilliams will give a special demonstration in the wards at St. Mary's Hospital at 2 p.m. These demonstrations are open to members of the medical profession without fee. At the London Lock Hospital there will be a comprehensive course in venereal diseases from January 31st to February 27th comprising clinical instruction in the out-patient department and formal lectures. A four weeks' course, beginning on January 31st, at the St. John's Hospital for Diseases of the Skin, will consist of instruction in the out-patient department and bi-weekly lectures; classes in pathology can be arranged also. From February 7th to 19th an all-day course in diseases of children will be held jointly by the Paddington Green Children's Hospital and the Victoria Hospital. The Royal Northern Hospital will hold a one-week course for general practitioners, starting February 21st, for which no fee will be charged. The Fellowship can provide for post-graduates practical courses in anaesthetics and in obstetrics, and also arrange for clinical assistantships at the Samaritan Hospital for Women. Copies of all syllabuses and the programme of the general course of work can be obtained from the Secretary of the Fellowship of Medicine, 1, Wimpole Street, W.1.

THE Sims Woodhead series of ten educational health lectures arranged by the People's League of Health will be given in the lecture room of the Medical Society of London, 11, Chandos Street, Cavendish Square, W., on Monday, January 31st, and the following Mondays at 6 p.m. Information regarding the lectures may be had from Miss Olga Nethersole, R.R.C., 12, Stratford Place, W.1.

A NEW course of lectures at the Hospital for Sick Children, Great Ormond Street, W.C.1, was commenced on Thursday last, when Dr. Hugh Thursfield dealt with the treatment of bronchitis and bronchopneumonia. The lectures will be continued on Thursdays at 4 p.m., ending on April 7th, when Dr. Pearson will discuss vomiting in infancy.

THE spring session of the James Mackenzie Institute for Clinical Research, St. Andrews, commences on Tuesday, January 18th, at 4 p.m., when Dr. Maitland Ramsay will deliver a lecture on so-called acute rheumatic iritis. On Tuesday, January 25th, at the same hour, Professor Herring will discuss the physiological aspects of blood pressure. Lectures will be continued on succeeding Tuesdays, terminating on March 29th, when Dr. Fyfe will speak on laboratory observations in acidosis.

THE annual general meeting of the Society of Superintendents of Tuberculosis Institutions will be held at 122, Harley Street, on Monday, January 17th, at 3 p.m. A discussion on the observation case will be opened by Dr. F. R. G. Heaf and Dr. N. Bardswell, and short papers will be read by other members.

AS already announced, a conference has been called by the Labour party to consider the present position of nurses. It will be held at the Caxton Hall, Westminster, on January 28th, and will be opened by Mr. Ramsay MacDonald. At the morning session, when Mr. Frederick Roberts, formerly Minister of Pensions, will preside, a discussion on the Sick Nursing Services will be opened by Dr. Somerville Hastings. In the afternoon, when Mrs. Sidney Webb will be in the chair, discussions will take place on nurses employed by the State, to be opened by Mr. George Gibson, General Secretary of the National Asylum Workers' Union, and on public health and preventive services, by Miss A. Sayle, of the Women Sanitary Inspectors' and Health Visitors' Association. Discussion will range round the draft report issued by the Standing Joint Committee of Women's Organizations and the Labour party's Advisory Committee on Public Health, but it is not proposed to adopt specific resolutions or take amendments. The object of the conference is to afford an opportunity for an interchange of opinion, and all suggestions made will receive consideration before the official report is issued. Among the bodies which will send delegates to the conference are the General Nursing Council, the Royal British Nurses' Association, the College of Nursing and Queen Victoria's Jubilee Institute for Nurses, the British Red Cross Society and the Order of St. John of Jerusalem, the National Association of Insurance Committees, and several hospitals in London and the provinces. The British Medical Association has nominated Sir Jenner Verrall, Mr. H. S. Souttar, F.R.C.S., Dr. G. F. Buchan, Dr. Alfred Cox, and Dr. G. C. Anderson to represent it.

THE Gifford Edmonds prize in ophthalmology of £100 is offered for the best essay on the causation and differential diagnosis of proptosis. The award is made every two years, and preference will be given to original work based on any branch of the subject. A notification appears in our advertisement columns, and further particulars may be obtained from the Secretary, Royal London Ophthalmic Hospital, City Road, E.C.

DR. GEORGE CRAN, M.B.E., V.D., was entertained on January 6th by his friends and patients at a complimentary dinner in the Town Hall, Banchory, in recognition of fifty years' zealous professional services in the district, and handsome gifts were presented to him and Mrs. Cran.

DR. A. T. BRAND having resigned the post of medical officer to the Driffield Workhouse, which he has held for forty-three years, the guardians have placed on record their great appreciation of his services.

DR. W. H. ANDREWS, a report of whose recent paper on trypanosomiasis in man and animals appears in our present issue, has been appointed to the post of Director of Veterinary Research in the Ministry of Agriculture's laboratory at Weybridge, in succession to the late Sir Stewart Stockman.

DR. J. C. BRIDGE, one of the medical inspectors of the Factory Department of the Home Office, has been appointed to succeed Sir Thomas Legge as Senior Medical Inspector of Factories.

THE American Society for the Control of Cancer announces that two prizes, each of 50,000 dollars, have been offered by Mr. W. L. Saunders of New York, one for the discovery of the nature and prevention of cancer, and the second for the invention of an absolute cure; the offer is open for three years to medical practitioners or laymen and may be renewable. The terms of the awards will be announced later, and further information may be obtained from Dr. C. N. B. Camac, 76, East 56th Street, New York.

MESSRS. J. AND A. CHURCHILL announce for early publication new editions of Professor A. J. Clark's *Applied Pharmacology*, and of Jameson and Marchant's *Synopsis of Hygiene*.

SINCE September there has been a great increase in scarlet fever in Berlin, the number of cases being almost double what it was in the corresponding period in the previous year, and several schools have had to be closed.

A REPORT on the results of convalescent care of the neuro-psychiatric patient, made under the auspices of the Advisory Committee on Convalescence of the Hospital Information Bureau of the United Hospital Fund of New York, has been received. The medical direction of this study was in the hands of Dr. Irving Pardee and Dr. Thomas K. Davis, acting on behalf of the committee on neurological convalescence of the Public Health Committee of the New York Academy of Medicine. Its purpose was to evaluate the customary procedures for the treatment of such cases in convalescent homes, and the hope is expressed that the interpretation of the findings made may lead to better classification and to improvement in the present methods. Among the findings are the marked shortage of beds for neuro-psychiatric convalescent care and the large percentage of patients (35 per cent.) between 20 and 30 years of age.

Letters, Notes, and Answers.

All communications in regard to editorial business should be addressed to ***The EDITOR, British Medical Journal, British Medical Association House, Tavistock Square, W.C.1.***

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All communications with reference to ADVERTISEMENTS, as well as orders for copies of the JOURNAL, should be addressed to the Financial Secretary and Business Manager.

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QUERIES AND ANSWERS.

"W. H. F." asks for suggestions for the treatment of persistent cough following acute influenza which has resisted all sedatives.

RHEUMATOID ARTHRITIS.

"M. B." asks for suggestions for the treatment of a lady, aged 60, with rheumatoid arthritis. Having tried other measures without avail, he started to treat her some time ago by intravenous injections of T.A.B. vaccine. The initial dose was 25 million, which he gradually increased by four stages to 100 million, but from the first the reaction was abnormally severe, including violent rigor, pyrexia of 2° to 4°, and a pulse increase to about 140 a minute, but no perspiration. The rigor begins about forty-five minutes after the injection, and lasts for upwards of one hour. The patient becomes slightly cyanosed during it, and when it is over she is quite exhausted and falls into a deep sleep. He has tried reducing the dosage and then increasing it again, but without benefit, the length and severity of the rigor being undiminished. There are no obvious contraindications in the case. "M. B." asks whether in the circumstances it would be advisable to restart the treatment, and would welcome any suggestion for lessening the severity of the reaction.

INCOME TAX.

"COLONIAL" retired from a colonial service and returned to England on December 18th, 1925; on January 10th, 1926, he went abroad and returned in March, 1926. He has been assessed to income tax as a British resident for 1925–26; is this correct?

*** We are of opinion that "Colonial" cannot successfully contest the view taken unless he can show that when he returned to England in December, 1925, he came without the intention of establishing a residence in this country—not necessarily of purchasing or leasing a house, but of making this country his residential headquarters in future. How far he is likely to succeed on those lines must, of course, depend on many circumstances which are within "Colonial's" power to allege and, if necessary, prove.

LETTERS, NOTES, ETC.

HERPES AND VARICELLA.

DR. CYRIL HELM (Great Horkesley, Colchester) writes: On October 5th a man developed typical herpes zoster on the chest. The vesicles dried up, but a fresh eruption occurred on October 20th. On October 25th his daughter, aged 4, developed chicken-pox. The child had not been in contact with any other case. So certain am I that the father infected the child that in future I shall regard every case of herpes zoster as a potential source of infection for chicken-pox.

DR. R. LYNN HEARD (Bexley, Kent) writes: There has lately been a resuscitation of correspondence as to the relation of these two diseases. For a number of years I have had no doubt as to their being merely different manifestations of the same infection. When children have been in contact with persons suffering from herpes (in one case pudendal) I have more than once prophesied that in a fortnight or so the child would develop chicken-pox—which forecast has been verified. I have also met an instance in which chicken-pox in a child was followed by herpes in its grandfather, who resided in the same house.

DR. A. H. SPICER (London, W.) writes: Captain X. Y. noticed a patch of herpes zoster on October 11th. He came to me three days later with a slight but typical rash of varicella, noticed that day. He visited his niece on October 12th or 13th, and she came out with a profuse varicella rash on November 2nd. The patch of herpes was single, and, although the patient was 64 years of age, was quite painless. He apparently infected the niece a day before his varicella rash developed.

HOSPITAL BOARD REFORM IN CAPETOWN.

"SPES BONA" writes with regard to the proposed changes in the constitution of the Cape Hospital Board, to which reference was made in the JOURNAL of September 18th, 1926 (p. 638). He states that the number of persons engaged in the administration of hospitals in the Cape peninsula is much less than the 200 mentioned. He attributes the apparent procrastination and inefficiency of the board to the retention of administrative control by a small number of officials who are ignorant of the hospital needs of the peninsula and conduct hospital affairs without reference to the wishes of the majority of the board. He thinks that the present system of centralization is unworkable, and that the proposal to reduce the number of the board members to eighteen will throw so much work upon them that they will be unable to control effectively the ten hospitals and institutions concerned.

*** While we consider that this subject is more suitable for discussion in the South African medical papers, we think it right to allow this note to follow the previous comment in the JOURNAL. Further discussion, however, should be continued in South Africa, where the facts are more fully known and the matter strictly belongs.

A HOSPITAL ORGANIZER.

PROFESSOR HEINRICH CURSCHMANN left no autobiographical notes which would have served as the basis of a biography, and his sons, in order that such details as it was in their power to collect should not be lost, have published a small volume (Berlin: Springer), written in association with two of his colleagues, who give a brief account of his professional career. The volume pretends to be no more than an outline; to portray so full and active a life within the space of a few dozen pages would be impossible. But his sons have ably performed a pious duty, and the facts amassed will be of value when a full biography comes to be written. The five chapters deal with Curschmann's ancestry and early life in Giessen, Maintz, and Berlin; his work as medical director of the hospital in Hamburg; his professorship in Leipzig; his hobbies in the field of literature and art; and his last years and final illness (Addison's disease). An appendix contains a complete list of his scientific writings, which cover a wide field. His chief studies were in connexion with the infective fevers, the great epidemic of typhoid fever in Hamburg in 1885–86 directing his attention to that subject and affording material for observations in the disease, which became his main interest to the end of his life. Mention should also be made of his work on aortic sclerosis, pericardial effusion, and arthritis deformans; and in this country his name is generally associated with the so-called Curschmann's spirals. In his own country the work for which he is chiefly renowned is, probably, the founding of the Eppendorf Hospital in Hamburg. When he was appointed director of the general hospital in that city it early became evident to him that the accommodation was insufficient for the number of patients. He strenuously opposed suggestions for the extension of the old hospital, and projected a scheme for a large new hospital beyond the suburbs of the city. Conditions became intolerable during the typhoid epidemic; not only were the wards overcrowded, but it became necessary to convert the corridors and even the cellars of the old building into wards. The plan of the new hospital, with its 1,100 beds, was Curschmann's own conception, and was carried almost to completion under his own eyes in daily inspections during the progress of the work. This was an undertaking that exactly suited Curschmann's genius; he was a born organizer, as had already been proved in his management of the old hospital. The new Eppendorf Hospital was scarcely completed when Curschmann received an offer of the post of professor of medicine in Leipzig. This he accepted, but although it had always been his ambition to become an academic teacher, he missed in the new post his old work of organization, and always looked back on the Hamburg days as the happiest in his life. However, he was able to introduce improvements in the hygienic arrangements of the hospital in Leipzig, and it was due to him that the clinical library, with its fine series of medical journals, was brought into the foremost place among the libraries of Germany. The chapter on art and poetry (Curschmann was himself a skilful draughtsman) brings out the sentimental side of the German character, and completes the sketch of a very vigorous and interesting personality.

THE Automobile Association announces that it has opened an office at 11, The Avenue, Southampton; the small office at the docks will be retained. A new A.A. office has been opened also at 10, Middle Row, Maidstone.

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NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 43, 46, 47, and 48 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 44 and 45.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 23.

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